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MARCH/APRIL 1998

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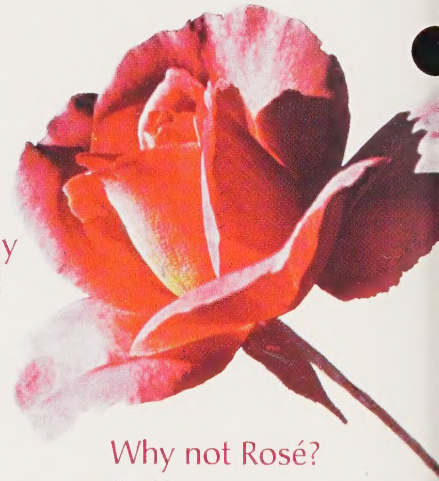

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SUPPLY AND DEMAND

Defending our turf

by Agustin Huneeus
Franciscan Estate Selections,
Rutherford, CA

The wine business is undergoing a worldwide boom unlike any I have seen, in my lengthy tenure in the wine business. As a result, vineyards, wineries, distributors, and retailers are all profitable, and the health benefits of wine are in the news more prominently than ever. Wine is good for you!

Price-earnings (P.E.) ratios of public wine companies are on par with companies in new and emerging mega-industries, such as technology.

The one thing that our industry has never been is static. Not only does it fluctuate with the economy, we also create supply and demand-oriented cycles of our own, as other agricultural industries do.

Demand

The wine industry is appropriately optimistic, judging by the positive economic indicators. As business leaders, we could suppose that this bonanza will continue indefinitely. But the underlying assumption necessary to support such optimism is a belief that we have the power to increase per-capita wine consumption in the U.S. as dramatically as we are able to increase supply.

The U.S. is the world's third largest wine producer, and yet per capita, we consume less than half the wine consumed by the next lowest-consuming wine producer, New Zealand. Increasing consumption in the U.S. up to New Zealand's level alone would double U.S. personal consumption. (See Table I.) Our current per capita consumption is just slightly more than one-tenth of France's.

Effective group marketing should significantly raise U.S. consumption levels in today's socio-economic environment. But a close look at our supply shows that California will more than double its current supply by the year 2000. (See Table II). Could even the best marketing double U.S. consumption?

It's also important to note that a very large part of this growth will come from Central Valley grapes. Until now, premium varietals have been predominantly produced in the cooler, coastal areas where quality and production costs are both traditionally much higher.

Therefore, this increase in supply will primarily occur in the wine segment which traditionally sells for less than $7 per bottle.

However, sales of wines under $7 are not growing. According to a report by Gomberg Fredrikson, sales of wine over $7 increased by 23% in 1996, and were up another 13% in the first half of 1997. Sales of wines under $7 only increased 3% in 1996 and were down 1% in the first half of 1997.

Overall, California wine consumption did not grow in this period. Clearly our supply/demand situation is out of balance. Increased supply is available, but in the market segment in which consumption is not growing. Conversely, there is an increased demand for wine in the premium wine segment which is not growing.

The twin dragons

In order to prosper, the California wine industry must confront and slay its dragons.

The first dragon is new and frightening. An excess supply of wines from lower-cost producing areas are flooding into traditionally higher cost/lower yield areas and undermining the value of the wines there.

The second dragon is the much older dragon of global wine glut. Many industry members take solace in the notion that U.S. exports will increase to compensate for rising import levels, thus keeping the U.S. demand/supply cycle in balance. However, evidence is to the contrary. There is now, and there always has been, a world wine glut. There has also been a huge excess of supply over demand in Europe.

The imported wine segment grew by 35% in 1997, and it is unlikely that U.S. exports will ever balance the flood of imports.

Besides the need to increase per-capita consumption in the U.S., how we deal with these dragons is the most important issue for our industry today. We must contain these dragons and defend our turf.

Our most potent weapon: Appellation

The most important differentiating

Table I — World per capita wine consumption for 1995 (in gallons)

France	16.77
Italy	15.96
Portugal	15.43
Switzerland	11.52
Spain	9.59
New Zealand	4.44
Netherlands	4.38
Rep. of Ireland	4.25
Cyprus	3.62
United Kingdom	3.38
Sweden	3.35
Norway	1.87
Poland	1.82
USA*	**1.79**
Iceland	1.32
Israel	0.82

***USA 1993 = 1.74 1994 = 1.77**

Source: Wine Institute, February 1997

factor for wine throughout history, and what has kept it from being labeled as a commodity, has been the historical attachment of wine to place.

Since ancient times, the hierarchy and pricing of wine has correlated to its geographic origin. Even in today's U.S. market, it is place that constitutes the most significant differentiating factor in the value of wines. Associating our wines with place is a containment system that has thus far protected California from the world wine glut.

Originally, the U.S. accelerated the development of its wine industry by usurping the European appellation system to market its table wines. These included such labels as Chablis, Burgundy, and Rhine. That plan failed after a very short time, because it was false. From that point, the U.S. classification system evolved to identifying wine by the varietal name of the grape from which each wine was made. The varietal-classification system has worked well for us so far.

And yet, varietal designation brings with it two inherent problems. The first is that grape varietal is not a true reflection of wine quality, as consumers have been led to believe. The relationship between wines of the same variety, but from different appellations can be tenuous or nonexistent.

The relationship between different varieties grown in the same appellation can often be much closer than that of the same varietals from different locations. There is more in common between a Napa Valley Merlot and a Napa Valley Cabernet Sauvignon than there is between a Napa Valley Cabernet Sauvignon and a Fresno Cabernet Sauvignon.

By emphasizing and distinguishing the varietal name in the marketplace, American vintners have shot themselves in the foot. We have chosen as our distinguishing characteristic an element which can be usurped by everyone, everywhere.

The process goes something like this: We develop a unique and excellent product, such as California Chardonnay, a special wine in many ways. We emphasize the name Chardonnay; we carefully develop and nurture the market, and it grows so quickly that the whole world wants a piece of it.

Suddenly, there are huge plantings of Chardonnay all over the world. These wines from everywhere are now competing in our domestic market, taking advantage of the varietal-designation system we devised and cultivated.

In the same fashion, we painstakingly make a beautiful wine from North Coast Merlot or Cabernet Sauvignon grapes. Again, since we emphasize the Merlot varietal and not the wine's appellation, the rest of the world jumps on the wagon. These are totally different products, providing totally different tastes, but still competitor countries may legitimately call their product Merlot.

By relying on the varietal concept, the U.S. wine industry has eroded our unique advantage in our own market. We have opened our markets to the flood of wines from everywhere. Varietal wines are becoming generic.

Trojan Horse (California-style)

Recently, we have accelerated the erosion of geographical distinctions in U.S. markets ourselves by ushering the wines of the outside world into our own territory. California has unleashed this Trojan Horse upon itself.

Table II — Estimated wine production for California (000 gallons)

	Actual 1996	Est. 1997	Est. 1998	Est. 1999	Est. 2000	% Increase
CHARDONNAY	309	392	430	520	610	97%
CABERNET	159	198	225	250	285	79%
MERLOT	104	155	200	250	280	169%
ZINFANDEL	300	370	410	450	480	60%

Source: Allied Grape Growers, June 25, 1997

A major U.S. wine supplier was quoted as saying, "We explained to our customers that either we'd run out of Merlot or attempt to source it from equally good juice at an equally good value." The vintner's message to the consumer seems to be: "If it's Merlot and if I pick it and put it in my bottle, it's great; trust me. Don't worry about where it's from."

A vintner typically achieves prestige through appellation-association. Transformation of the appellation name to an international negotiant's name or even into a multiple appellation designation is a new phenomenon. The transfer of the prestige of one appellation to another has ramifications that are both long-term and detrimental; they require our attention.

An even more controversial practice is to change the appellation on a label. Label recognition and prestige have long been associated with specific appellations in the consumer's mind. So when a label changes to reflect changes in the wine's content due to shortage of supply or lower production costs, there is unquestionably a transfer of one appellation's prestige to another. Vintners who should know better are sending a strong message to consumers that the geographic origin of a wine is irrelevant. This is a major departure from tradition and from consumer expectations.

Increasingly, wine is being sourced not only from other appellations, but from other countries.

> "Imported table-wine volume has risen by more than 50% since the start of the decade. This upward climb had been fairly gradual until 1996, when, thanks largely to California wineries' sourcing bulk wines from Chile and France, import volumes exploded. In fact, *more volume was added to the imported table-wine sector last year than in all the previous years of the 1990s combined,"* (*Impact*, July 1997).

This situation is analogous to finding a Japanese automobile engine under the hood of a Mercedes Benz; it is a practice which threatens market distinction. Clear evidence of the problems this causes can be seen in the marketplace, where even knowledgeable retailers are selling foreign wines in their California sections, perhaps without realizing it.

This is an important new phenomenon, one that will play heavily into the equation of supply and demand. It needs wide-reaching, thorough industry discussion and action. This action must be based on a solid understanding of the issues involved and the risks we are taking, with an eye to the future.

Summary

The future of the wine business as a whole and the survival of most of California's individual wine industry businesses will depend to a great extent on our ability to maintain price segmentation.

I believe that price segmentation is closely related to place. If the constraining walls of cost segmentation erode, only the biggest companies, which are the lowest-cost producers in the highest-yielding areas of the world, will survive.

In the face of the evident changes in the California demand/supply cycle, which have been aggravated by the permanent European wine glut, we must study the long-term effects of our practices. We must assess and reflect upon their impact and take remedial protective action.

If the California wine industry was in Europe, our approach might be to block our roads to coming imports. We might regulate and limit imports. We might create tariffs, prohibit planting, and subsidize vineyard removal.

Our American approach is different. We don't cry to our government. Our way is the way of the individual; if this were the Old West, we'd shoot it out. But the current situation requires a different, group-oriented approach.

Recently, California vintners have begun to see the enormous benefits of acting together. California's present bonanza is strongly related to the intelligent, extensive, and positive action of the industry in efforts related to wine and health led by the Wine Institute, based in San Francisco.

The benefits we have all reaped from working together have been greater than anything we could have achieved through individual action, regardless of the size of the individual.

Increasing per-capita consumption is by far our highest priority. It is only through strong, unified group promo-

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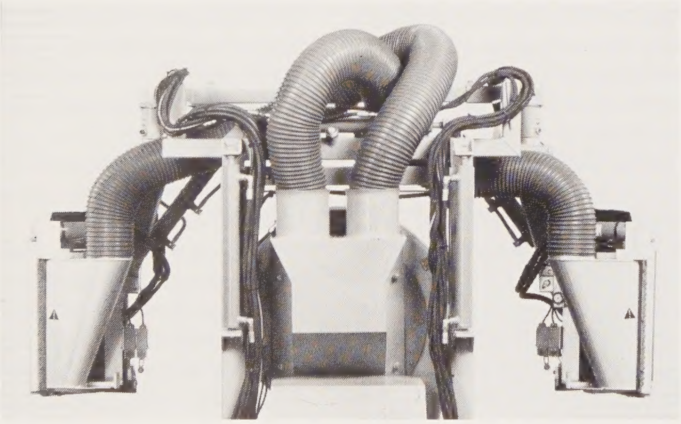

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tion that we will succeed in reaching this goal. Our usual "cannibalistic" marketing practices will only keep the retail shelves and wine lists moving from one winery to the next, but not expanding.

Containing our dragons

To defend our "turf" against the twin dragons, California vintners must reinforce the walls of containment. We must re-emphasize our diversity and our differences to create appellation-awareness. We must associate wines with their "somewhereness." This is particularly important for those 90% of companies that sell higher-priced wines.

The California wine market is a rapidly changing arena. There was a time in the 1970s when price segmentation was dependent upon whether a wine was "cork-finished" or "cap-finished." Later, it became vintage-dated or non-vintage.

I propose that the next differentiation will be between wines that emphasize "varietal" or "appellation." One can already hear the powers-that-be in the wine media and knowledgeable consumers referring to "commercial" versus "terroir" wines.

The structure of our industry lends itself to this transition. We can clearly identify big-branded wineries and smaller, appellation- or terroir-based vintners. This is the future.

Conclusion

We have awakened big dragons in our pressure to quench demand. We have incited increased supply from lower-cost-based areas. We have ushered our dragons into our consumers' minds. Can we put the dragons back to sleep? Not likely.

As a mature industry, let's join forces to increase demand and tame those dragons.

Let's assess, reflect upon, and discuss our own actions and practices.

The U.S. wine market's future depends to a great extent on our ability to guide the industry in unity, with our feet in the present and eyes to the future. ■

As president of Franciscan Estate Selections in Rutherford, CA, Agustin Huneeus gave this edited presentation at the Wine Industry Financial Symposium, November 1997, in Napa, CA.

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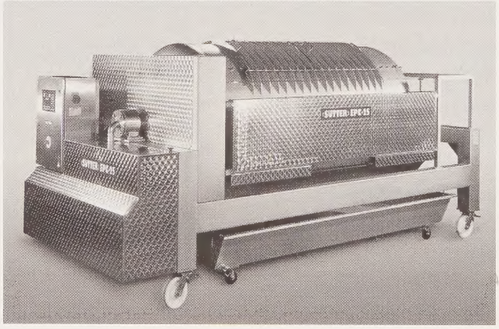

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WINEGROWING

Formation of lime scale in vineyard drip irrigation systems

by Lizanne E. Wheeler, M.Sc., PCA, CCA
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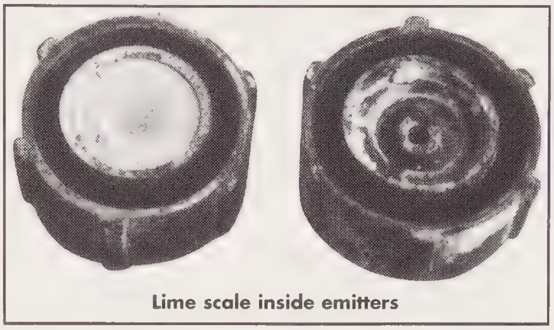
Vineyard Water, Cayucos, CA

Deposition of lime scale (calcium carbonate) in drip irrigation systems is one of the most common causes of system plugging and the associated loss of irrigation uniformity. Scale formation in irrigation systems is a chronic plugging problem. That is, it slowly builds up over time, gradually restricting the flow through emitters. Distribution uniformity of the irrigation system may be severely affected before any emitters are noticeably plugged.

How does this precipitation occur? How can you predict and prevent its contamination of your drip system?

Lime scale is the salt of two very common substances, calcium and carbon dioxide. It is commonly referred to as calcium carbonate, calcite, or lime. Calcium carbonate is a polar molecule (it has a "north pole" and a "south pole," which creates an electromagnetic field), and molecules will stack up like tiny magnets one upon the other to form large macro-crystals over time.

To a certain degree, the amount of calcium carbonate held in solution is dependent upon there being a small amount of carbon dioxide gas in equilibrium in the water. Cold water can hold more dissolved gas than hot water. The phenomenon of scale formation when water is heated is referred to as "the teakettle effect," because it is common to find large flakes of calcite crystals in the household teakettle. In the vineyard, irrigation water tends to heat up in black drip tubing, favoring the precipitation of scale.


Lime scale inside emitters

Predicting lime scale challenges

How do you predict whether or not lime scale will be a problem and prevent it from eventually plugging the drip system? For lime scale to form, three conditions must occur: the presence of carbon dioxide, the presence of calcium, and the relative absence of available protons. These three factors are easily measured in water on-site at the vineyard as Total Alkalinity, Total Hardness, and pH.

The amount of carbon dioxide in solution can be measured by the ability of the water to absorb protons. If the water contains a great deal of carbonates and bicarbonates, the addition of free protons (acid) will combine with these to form bicarbonates, carbonic acid, and CO_2 gas. The net effect on the concentration of free protons (measured as pH) will be far less than if the water contained very small amounts of carbon dioxide.

The carbon dioxide buffers the solution from large pH variations. This ability to absorb protons is termed alkalinity. To determine the alkalinity, a water sample is titrated with acid (acid is added drop by drop), until a certain pH is reached. The pH end point is usually determined by a chemical indicator dye that turns color around pH 4.5.

Counting the drops of acid required to reach the end point allows us to calculate the total amount of carbon dioxide that was present in solution. This is termed Total Alkalinity and is usually expressed as mg/L $CaCO_3$. Water with a Total Alkalinity over 150 mg/L may cause emitter plugging in one season, if the concentration of calcium ions and pH of the irrigation water are also favorable for scale formation. Water with a Total Alkalinity below 50 mg/L (as $CaCO_3$) should not present a significant scaling potential.

The amount of calcium in solution can be estimated by performing a Total Hardness test. Hardness is a qualitative term used to describe the ability of water to form soap scum. The main ions responsible for precipitating soap are calcium, magnesium, and iron. Of these three, calcium is the most important.

In the Total Hardness test, an indicator dye is added to a water sample that turns the water a wine red color in the presence of calcium and magnesium. This sample is titrated with a chelating agent (EDTA) that complexes with the calcium and magnesium. (Complexing means it combines with the ion, making it unable to precipitate out of solution.) When enough chelate has been added to complex all of the hardness cations, the indicator dye turns blue.

By counting the drops titrated, we can calculate the Total Hardness of the water, usually expressed as mg/L $CaCO_3$. Water with a Total Hardness over 200mg/L could cause significant scale plugging in one season, given adequate Total Alkalinity and an elevated pH. A Total Hardness of less than 50 mg/L (as $CaCO_3$) should not present a significant scaling potential.

Iron is typically present only in relatively small quantities. If it is present in larger quantities, it will probably demand greater irrigation management focus than lime scale because of iron hydroxide precipitation and bacterial contamination plugging the emitters.

Magnesium, on the other hand, does not form lime scale to the degree that calcium does. Magnesium carbonate is quite soluble, while magnesium hydroxide, $Mg(OH)_2$, is insoluble. Magnesium hydroxide precipitation can become a problem at higher pHs (above 8.0), but irrigating winegrapes with water as alkaline as this is unusual.

Forms of carbon dioxide in water

To understand the mechanism for scale formation, we must look at different forms of carbon dioxide in water. There are five different forms of carbon dioxide that may be present in a drip irrigation system. These forms vary in the number of protons (hydrogen ions) with which they are associated, and are therefore dependent upon the pH of the water (pH is a measurement of the free protons in solution.)

The first form is carbon dioxide gas, or CO_2. The solubility of CO_2 gas in water is temperature- and pressure-dependent. Water under pressure can hold more gas than water in a vacuum. This is evidenced by the release of CO_2 bubbles when a bottle of "soda water" is opened. When we heat up soda water, it releases even more CO_2 gas, because of the reduced solubility of gases at higher water temperatures (the teakettle effect).

The second form of carbon dioxide is carbonic acid, H_2CO_3, which is the combination of water and CO_2 gas.

$$H_2O + CO_2 = H_2CO_3$$

water + carbon dioxide = carbonic acid

Carbonic acid does not retain the two protons as tightly as did the water, and these more liberated protons acidify the water and lower the pH. In fact, bubbling CO_2 through distilled water will lower the pH to around 4.5 because of the formation of carbonic acid and the subsequent release of its proton.

The third form of carbon dioxide is the bicarbonate ion, HCO_3^{-1}, which is carbonic acid that has lost the first of its two protons.

$$H_2CO_3 = H^{+1} + HCO_3^{-1}$$

carbonic acid = proton + bicarbonate

In water that is neutral (near pH 7.0), the bicarbonate ion is the predominant form of carbon dioxide.

The fourth form in which carbon dioxide may be present in an irrigation system is as the carbonate ion, CO_3^{-2}. Carbonate ions are formed when the bicarbonate ion, HCO_3^{-1}, loses its second proton. This occurs principally when there is a relative lack of protons, characterized by a pH greater than 7.5 or 8.0.

$$HCO_3^{-1} = H^{+1} + CO_3^{-2}$$

bicarbonate = proton + carbonate

The fifth form of carbon dioxide is calcium carbonate, $CaCO_3$. This is lime scale, and it is typically formed when a calcium ion comes in contact with a carbonate ion. Because the calcium ion has a +2 ionic charge, it can satisfy the -2 ionic charge of the carbonate ion, forming the calcite salt.

$$CO_3^{-2} + Ca^{+2} = CaCO_3$$

carbonate + calcium = calcium carbonate

If there are sufficient protons available in solution, the carbonate ions will most likely be in the bicarbonate form (HCO_3^{-1}), and the calcium ions will be unable to locate a carbonate ion to link up to and cause a precipitation.

There is another mechanism for calcium carbonate precipitation. This occurs during evaporation of water containing high amounts of calcium and bicarbonate ions.

The chemical equation becomes a bit intimidating, but what happens is that a bicarbonate ion releases a hydroxyl ion (OH^{-1}), which accepts a proton (H^{+1}) from a neighboring bicarbonate ion to form water (HOH). A molecule of CO_2 gas escapes into the atmosphere; leaving a calcium ion and a carbonate ion. These latter two join to form a calcium carbonate precipitate (lime scale).

$$Ca\,(HCO_3)_2 = H^{+1} + OH^{-1} + CO_2\uparrow + Ca^{+2} + CO_3^{-2} = CaCO_3\downarrow + H_2O$$

calcium bicarbonate =
proton + hydroxyl ion + carbon dioxide + calcium + carbonate = calcium carbonate + water

This reaction would be expected inside an emitter, where evaporation can be quite high. It is also at the emitter outlet where a large pressure drop occurs, which allows escape of CO_2 gas. The throat of Venturi style injectors is another common location in drip systems where there are large pressure drops. It is not unusual to find lime scaling there as well.

When water is heated and pressure is reduced, lime scale is precipitated. This occurs when cool, pressurized irrigation water is sent through black hoses, where the water heats up and is then depressurized through the emitters. ■

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If your water contains a relatively high percentage of magnesium as compared to calcium, the EDTA Total Hardness test will not be a good indicator of the potential to form calcium carbonate scale.

The third condition necessary for the formation of lime scale is the relative lack of available protons. This is easily measured as pH. In the field, pH indicator strips are satisfactory. A pH approaching 7.5 or greater is cause for concern regarding scale formation.

Because of the volatility of the carbon dioxide chemistry, the factors that we wish to measure begin changing as soon as a water sample is taken. Reducing the pressure of the water, mixing it with air during sampling, and changing its temperature during storage will affect the equilibrium of carbon dioxide, potentially causing significant changes in pH, Total Alkalinity and Total Hardness. In fact, it is this volatility that presents us with the challenge of lime scale to begin with.

For this reason, samples taken and sent to a laboratory to be analyzed several hours or even days later produce results that are of questionable value with regard to lime scaling potential. Field determinations of these parameters are quick and inexpensive. Field test kits for determining Total Alkalinity, Total Hardness, and pH are available from catalogs and swimming pool supply stores.

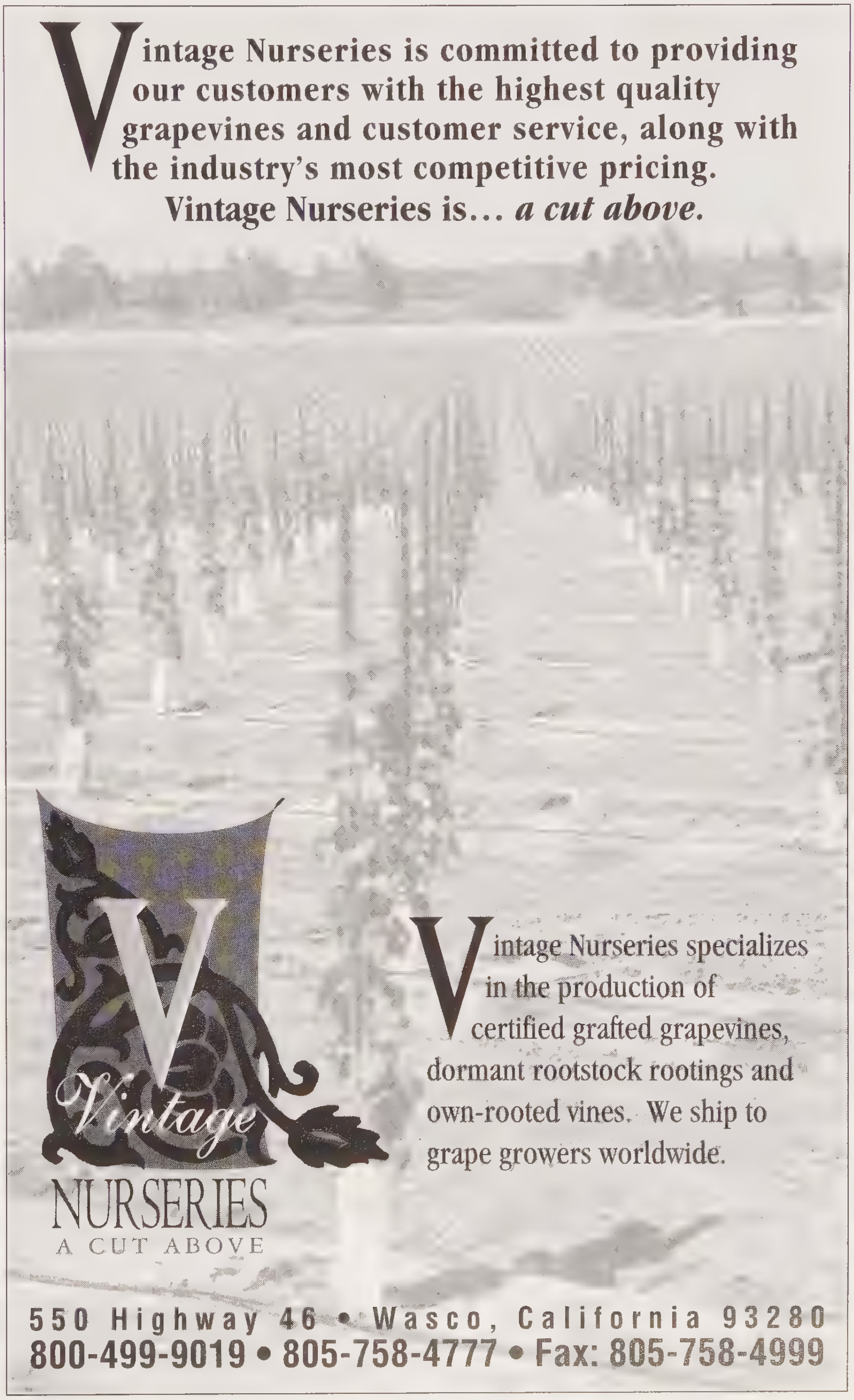
Whether or not the hardness, alkalinity, and pH are conducive to forming scale is dependent upon a number of interrelated factors. One calculation that is commonly provided in laboratory water analyses is the Langelier Saturation Index, which takes into account these three factors as well as temperature and total dissolved solids. The Langelier Saturation Index expresses how far above or below the current pH calcium carbonate would be in equilibrium in the solution at a given temperature.

A Langelier Index of +1.1, for example, indicates that the water has a pH 1.1 higher than the equilibrium point, and calcium carbonate precipitation would be expected. Of course, the amount of precipitate is limited to the amount of calcium and carbon dioxide present. On the other hand, if the Langelier Index is -0.5, the water is half a pH point lower than the level at which calcite precipitation would be expected. This water would theoretically dissolve calcium carbonate (and corrode concrete pipes).

Preventing lime scale formation

The potential to form scale is limited by pH, alkalinity, and hardness. If the water contains sufficient protons (below pH 6.5), the scale forming potential is negligible. However, if the source water is high in calcium and alkalinity and has a low pH, the injection of a fertilizer that raises the pH (ammonia for example) may cause precipitation of calcium carbonate.

Another common occurrence is addition of calcium to irrigation water that was low in calcium, but high in Total



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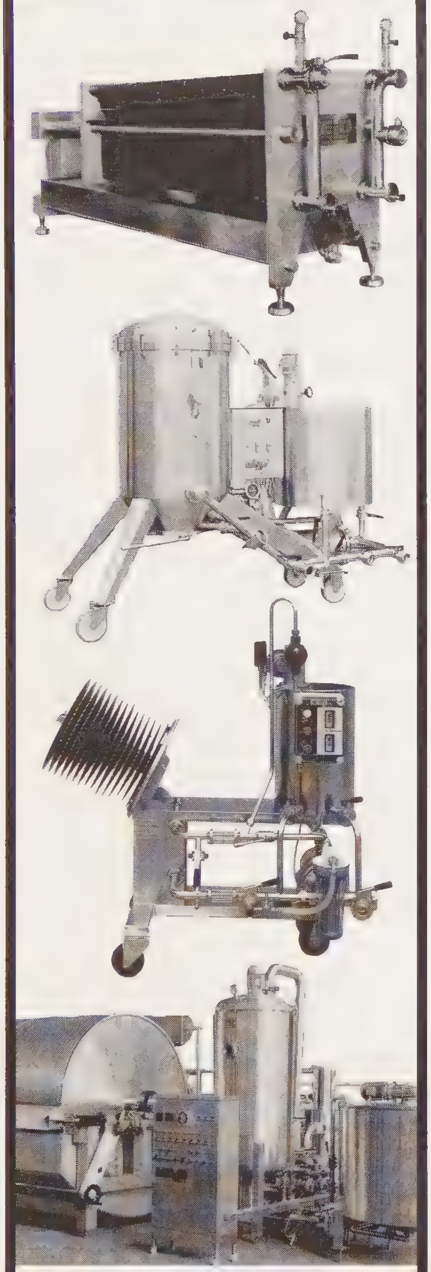

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Alkalinity and pH, conditions such as may be found in snowmelt surface water. In this case, the missing factor is supplied to form lime scale. Many vineyardists who begin injecting gypsum (calcium sulfate) into their drip systems find scale deposits in their emitters that did not form there prior to the calcium injections.

If the irrigation source water is conducive to scale formation, the next question is: "How fast will it plug the emitters?" This depends upon the quantity of calcium and carbonates present, the amount of irrigation performed, and irrigation scheduling. Scheduling may influence the temperature of the water in the drip hose, and how often the drip hose is allowed to dry out. This is not to suggest that scale formation should play a major role in irrigation scheduling. There are better ways of dealing with challenges of lime scale plugging drip emitters.

First of all, if the source water is not conducive to scale formation (it has a negative Langelier Index), do not add anything that will change the equation to cause calcium carbonate precipitation. Avoid fertilizers that raise the pH of the water. Avoid adding gypsum to water that has a pH above 6.5.

If the source water is naturally lime-forming, reducing the pH and the alkalinity with the addition of acid can modify it. Reducing the pH to around 6.5 will be sufficient.

A category of water treatment chemicals known as scale inhibitors is being introduced to agriculture from industrial applications. Their chemistry varies, but they all serve the same purpose: to prevent formation of large calcite crystals. Some do this by complexing calcium, which renders it unavailable to the carbonate ion. Others do it by deforming the calcite crystal which makes it difficult for large, emitter-plugging crystals to form. Most of the products available are effective at preventing scale and are generally cost-effective compared with acid treatments.

A common method of dealing with lime scale formation is to allow the scale to form in the emitter and hoses and periodically remove it with strong acid injections. Although this can be effective in the removal of calcite, there are some downsides to this practice.

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One is that the distribution uniformity of the irrigation system suffers between treatments. Another is that higher amounts of acid (at a lower pH) must be injected to remove scale than would have been necessary in a continuous feed injection to prevent its deposition. In addition, lower pH increases the risk of damage to the irrigation equipment and grapevines.

Another important factor is the worker safety issue. When irrigators are required to inject acid only once or twice per season, they need to receive the proper training or refresher courses to allow them to handle the hazardous acid safely. It is better to treat scale formation in the drip system as you would treat powdery mildew on the vines — prevention is preferable to cure. ■

Lizanne E. Wheeler and Patrick D. Brown are independent irrigation design consultants, specializing in developing management and training programs for micro irrigation systems. They may be contacted through Vineyard Water, 521 Lucerne Road, Cayucos, CA 93430, (805) 995-0587.

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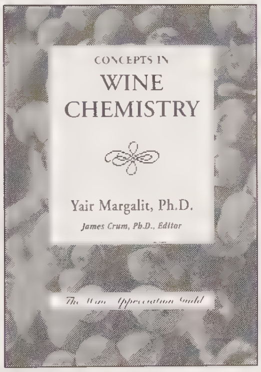

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When trauma strikes your workplace

by Trula M. LaCalle, Ph.D.

This morning you were called to the scene of a terrible accident. Your foreman was killed while operating heavy equipment on the vineyard/winery property. His co-workers called 911, and as the owner/manager you had the horrifying task of, notifying his wife. The emergency medical team rushed him to the hospital, but nothing could be done.

Now, hours later, things are beginning to settle down. The police stayed for awhile to question you and the employees, but they've gone. You've called the company insurance carriers and attorney. You're shaken but you have to hold yourself together and make important decisions about what comes next.

You call a meeting to notify all staff members about what has happened. As you expected, no one is capable of going back to work. Some of them weep openly, and you tell everyone to go home until tomorrow. Tomorrow. What will you do tomorrow? How can you get things back to normal?

The decisions you make following a critical incident such as this one can seriously affect your workforce for years. Taking the proper action now can reduce the chance of employees suffering from post-traumatic stress. Naturally, you think first of medical and legal issues, which are foremost. If you are well prepared, your company has emergency procedures and annually reviews them. But even well-prepared managers sometimes forget the necessity of taking care of their employees' emotional well-being — and their own, as well — following a workplace trauma.

Days, weeks, or months after a trauma or tragedy takes place at work, you and your employees can suffer from the emotional aftermath of that incident. Health and attendance can be gravely effected. Morale can plummet. Accidents can increase. Productivity and performance can decline. With this in mind, be sure that your emergency procedures also include post-trauma emotional support for employees.

Critical incident debriefing

The odds of having a critical incident occur in your workplace are greater than you may think. Consider the following possibilities: serious injury or accident; medical emergency, such as heart attack or stroke; physical fighting or other violence; natural disaster; suicide; spousal abuse that spills over to the workplace; attacks by outraged vendors or customers; armed robbery; rape; or mentally disordered behavior from employees or others.

No workplace setting is immune to any of these traumas. More than one type can occur in any work setting. Being prepared to deal with such incidents is an important factor in how well you and your employees are able to cope with the aftermath when a workplace trauma occurs.

The first step following a major crisis in the workplace is the critical incident debriefing. Within 48 hours, preferably within 24 hours, following a critical incident, hold a meeting for debriefing employees. A mental health professional or other qualified consultant should be engaged to assist you and your staff in this process. You will be best served if you use a professional who has already worked with the winery or vineyard and knows you and your employees.

The purpose of the critical incident debriefing is to normalize emotions by helping employees understand some of the reactions they may have, by encouraging employees to gain support from each other, by recalling positive and productive coping strategies, and by allowing them an opportunity to verbalize their thoughts and feelings. This verbalization of emotions is important, because most people don't cope well when they have to suppress their feelings and hide or downplay their emotions. Naturally, some employees will choose to express more feeling than others who may do better by saying little and listening a lot.

A follow-up debriefing with the same professional or consultant should occur within a couple of weeks. This debriefing allows employees to share what coping strategies have worked best for them, to discuss any feelings which have come up since the time of the first debriefing, and, generally speaking, to monitor their progress. Oftentimes, employees are better able to think through their reactions, once they have recovered somewhat from the initial shock of the incident. This is a good time to offer private counseling sessions — perhaps through your Employee Assistance Program — for those who are not recovering quickly and feel they need additional help.

Management must keep a watchful eye on employees and themselves for several weeks, even months, following a critical incident. Look for signs of irritability, fatigue, negativity, nervousness, poor health or aches and pains, critical and demanding behavior, drug or alcohol abuse, or apathy. If an employee seems to be going downhill, be sure to ask whether he or she has been reflecting on the incident. The employee may need to speak with a professional about it. Critical incidents can sometimes trigger memories of painful and unresolved events in an employee's personal life; these more deeply rooted reactions are best addressed by a mental health professional.

Usually, the employee does not need on-going counseling, but only needs to speak with an outside consultant once or twice in a similar manner to that of the critical incident debriefing and follow-up meeting. It is oftentimes important for management to participate in

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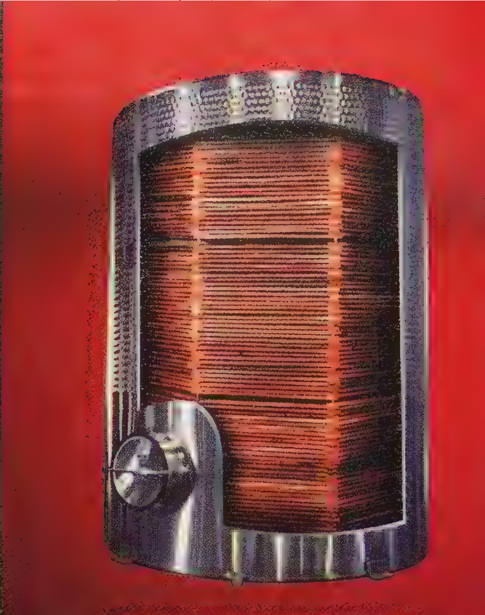

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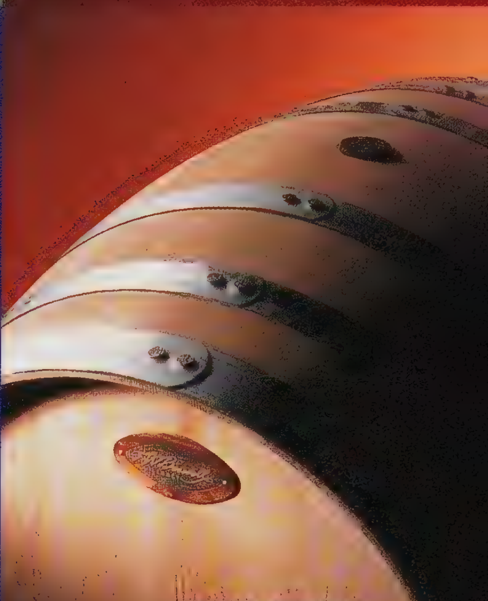

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this consultation to provide reassurances or support that the employee may be needing, especially when the incident has caused anxiety about the employee's own safety. Be careful not to assume that problems among your employees will disappear quickly. Develop a system to monitor the long-term effects of the incident over the next several months.

Needs of Hispanic employees

The needs of Spanish-speaking employees following critical incidents must not be minimized. Although resources for assistance are scarce, their emotional needs must be met in the same way as those of other employees. Even if Hispanic employees speak some English, unless they are completely bilingual, they are likely to have difficulty using English to express emotionally laden and complex thoughts.

Since employers of monolingual Spanish-speaking employees are likely to have difficulty finding appropriate resources, it is wise to locate resources for critical incident debriefing, for post-incident consultation to your management and Spanish-speaking employees, and for private counseling before an incident occurs. Refresh your resource list annually to be sure that those Spanish-speaking professionals remain readily available to you.

To begin locating resources for critical incident debriefing, check with your local chamber of commerce, Hispanic chamber of commerce, county mental health agency, and psychological association.

Management should take advantage of the opportunity of increased levels of communication that develop immediately following a crisis. This period, if used productively to develop a unified team, will solidify relationships rather than rupture them. Over the long term, ongoing improvements in company-wide communication will help to decrease the possibility of post-traumatic stress interfering with the well-being of the vineyard or winery workforce.

Last, but certainly not least, take care of yourself. As a leader, your example is of utmost importance. And for your own benefit, you must pay attention to your health, both physical and emotional. You, too, will need to talk about what happened — settle your own confusion, quiet your own feelings, examine and understand your reactions, and shed any fears you may have. When you speak to those professionals whom you've commissioned, ask for some private time for yourself. Even if you think you won't have a lot to say, go ahead with it. You may surprise yourself. ■

Trula M. LaCalle, Ph.D. is a human relations and management consultant living in Sonoma County. Spanish is her second language. She is married to an Hispanic and has 25 years experience working with Hispanics from various Latin American countries. Her background in cross-cultural psychology lends unique insights to her training presentations and consultations.

She can be reached at 707/829-9496, 888/LACALLE, or lacalle@metro.net.

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Associated Winery Systems, Inc., (AWS) has expanded its location for the third time in the last eight years with purchase of a new facility in the Windsor Business Park, north of Santa Rosa, CA.

AWS has grown to become an important supplier of processing and packaging equipment in the wine industry by providing quality equipment, service, and support to its growing list of customers.

A 5,000-square-foot equipment showroom displays bottling lines, glue-applied and pressure-sensitive label applicators, pumps, destemmers, membrane presses, rotary fermentors, wine tanks, and Della Toffola filters for lees, DE, and pad filtration.

Winery customers are invited to visit the new facility by appointment or any Monday through Friday.

Visit the AWS website, at *http:\\wineryequipment.com*, for details on all of the wine processing equipment.

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e-mail: aws@sonic.net
Web page: http:\\wineryequipment.com

Sonoma Grapevines

Sonoma Grapevines (SGI) is expanding its California facilities. In mid-January, SGI started grafting at its new customer service center in Fulton, CA. A new half-acre building houses potting, grafting, and cutting activities and adds about 20,000 square feet to the previous Santa Rosa grafting area. The building has four grafting lines each producing about 60,000 grafts per day using either Omega or saw-grafting techniques. The cutting processing area handles 300,000 cuttings per day.

A new state-of-the-art cold storage building of 30,000 square feet is divided into six rooms, each with individual temperature and humidity control. This building can hold a combination of 10 million field-grown vines, 16 million rootstock cuttings, and four million budwood cuttings.

One acre of greenhouses was built in Fulton in early 1998. Other new buildings there include a mechanic shop, vineyard operations building, and customer service office. All vine deliveries will be made from this new center.

SGI has acquired additional nursery acreage in Madera County to be used for dormant vine growing in 1999. New cold storage and greenhouses will be built summer 1998 at the field operations center in Caruthers.

Through all of this expansion, SGI has focused on customer service. Grafting now takes place in Santa Rosa, Fulton, and Caruthers. Whether customers order one vine or one million, SGI's different grafting areas are organized to supply each customer. The nursery has 358 acres of registered increase blocks containing many varieties, clones, and rootstocks.

For further information, to obtain the SGI newsletter, or confirm vine/cutting availability, call:
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Vinquiry

Vinquiry, Inc., has moved its operations from its long-time home in Healdsburg, CA, to new facilities at 7795 Bell Road in Windsor, CA.

Vinquiry has been owned and operated by MaryAnn Graf and Marty Bannister for 19 years, serving clients throughout North America by providing wine and distilled beverage analysis, consulting services, and sales of laboratory and specialty winemaking supplies.

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For more information, contact:
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Cork Associates

In September 1997, Cork Associates moved its processing plant and offices to 2557 Napa Valley Corporate Drive in Napa, CA. The new building, with 22,000 square feet and a 24-foot high ceiling, almost doubles the cubic space of the company's previous facility.

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Expanded office space allows for Cork Associates' growth into the 21st century.

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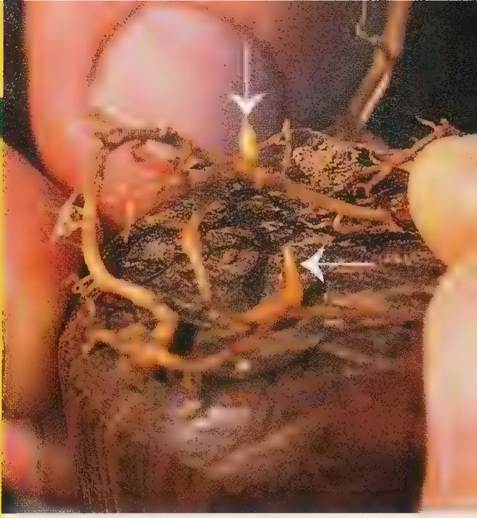
Phylloxera leaf galls



Swollen root tips (nodosities) caused by phylloxera feeding

Are phylloxera feeding on 5C rootstock in Europe?

by **Andrew Walker**, UC Davis
Jeffrey Granett, UC Davis
Amir Omer, UC Davis
Hong Lin, UC Davis
Laszlo Kocsis, Pannon University of Agricultural Sciences, Keszthely, Hungary
Astrid Forneck, University of Hohnheim, Germany
Matthias Porten, Geisenheim Research Institute, Section for Grape Breeding and Grafting, Germany

Phylloxera are the most damaging insect pests that attack grapevines. They are closely related to aphids and can attack both grape roots and leaves. The most severe injury is to the roots where two forms of damage occur: galling of the root tips, called nodosities; and galling of mature roots, called tuberosities. Tuberosity damage is considered to be more severe because it allows entry of soil fungi which girdle and kill the roots.

History

Phylloxera are native to North America where they coevolved with numerous *Vitis* species. These wild *Vitis* have varying levels of phylloxera resistance. In general, those with strong resistance to root-feeding phylloxera are fed upon by leaf-feeding forms. This two-stage feeding ability allows phylloxera to proliferate on the roots or leaves of wild vines from Quebec to Venezuela. When phylloxera populations overwhelm their food source, they often develop wings allowing wide dispersal in search of new hosts.

Phylloxera were inadvertently introduced into Europe in the mid-1800s on the roots or leaves of wild grapes being imported from the U.S. to produce hybrid grapes with fungal resistance. European vineyards consisted of own-rooted *Vitis vinifera* cultivars, which were completely susceptible to root-feeding by this new pest. These vineyards were finally saved by development and use of resistant rootstocks bred from resistant North American species.

Hundreds of rootstocks were produced from the 1870s to the 1930s through the efforts of breeders and nurseries attempting to match rootstocks to European vineyard conditions. Among the most widely used were rootstocks developed by Zsigmond Teleki and others (*PWV* March/April 1992, *PWV* Nov/Dec 1997). These were hybrids of *V. berlandieri X V. riparia*, designed to resist phylloxera, tolerate limestone-based soils, and induce moderate vigor in scions.

Some of these rootstocks also possess moderate resistance to root-knot and dagger nematodes. The major limitation of the *V. berlandieri X V. riparia* rootstocks is their relatively poor drought tolerance, which can lead to reduced growth and yields on shallow soils or in areas with dry summers and limited or no irrigation. Teleki's hybrids (5C, SO4, 5BB, and others) continue to be the most widely used rootstocks in the world.

Current concerns

Over the past few years, rumors have arisen concerning the collapse of Teleki rootstocks to phylloxera in localized areas of Germany. Phylloxera have also been found feeding on Teleki rootstocks in Hungary. In California, strains of phylloxera have also been identified that are capable of feeding on 5C.

The collapse of vineyards on Teleki rootstocks would lead to a worldwide viticultural crisis. This report will address each of these cases, present some relevant factors for each situation, try to put this threat into perspective, and describe what is being done to understand and solve the problem.

Phylloxera in Germany

Phylloxera damage in Germany is mostly restricted to vineyards near Wiesbaden in the Rheingau; south of the juncture of the Mosel and Rhine rivers. The sites have several factors in common. Growers in these areas had used 26G rootstock in plantings prior to World War II. A *V. vinifera X V. riparia* hybrid that was well-adapted to these sites, 26G thrived at first. But like AXR-1, a *V. vinifera X V. rupestris* hybrid, it eventually collapsed to phylloxera.

Vineyards on 26G are still being replanted, often without extended fallow periods and without the use of preplant fumigants or insecticides. The soils in these areas vary in depth but are much less fertile and deep than those found in California vineyards. As in all areas of Germany, supplemental irrigation is not allowed, and vines are dependent on summer rainfall to thrive on the shallow soils. Herbicide use has declined in Germany, and frequent disc-cultivation is used to control summer-growing weeds.

There are also many "escaped" rootstock vines growing in and around vineyards. These vines grow on hedgerows and fences surrounding vineyards and appear to be *V. berlandieri X V. riparia* rootstocks. Others could be hybrid seedlings of 5BB with local varieties like Riesling and Rulander, much like the frequent hybrids of *V. californica* with wine varieties that occur along rivers and streams in California's grape growing regions.

Shoot tips and young leaves of these vines are often covered with phylloxera leaf galls. Phylloxera leaf galls are common on most *Vitis* species in areas where summer rainfall or humidity is high. Such galling can be extensive enough to cause shoot damage (see photo). Leaf galls are rarely found on *V. vinifera* leaves. Phylloxera from leaf galls spread to feed on young leaves and shoots and can wander or be blown to the soil where they can feed on susceptible young root tips.

All of these conditions occur in and near the vineyards where *V. berlandieri X V. riparia* rootstocks are declining in Germany. Phylloxera in these vineyards have been only observed feeding on the root tips, causing nodosities. No galling of the mature roots, tuberosities, has been found. The presence of high numbers of nodosities does correlate with vine damage in Germany.

Phylloxera in Hungary

Dr. Laszlo Kocsis at the Pannon Agricultural University in Kesthley, Hungary, recently reported the presence of numerous nodosities on 5C, SO4, 5BB, and other rootstocks in his experimental vineyards. These vineyards are used to test new rootstock selections, and phylloxera populations are intentionally kept at high levels by interplanting with *V. vinifera.*

Leaf galls and many nodosities can be found throughout the vineyard on rootstocks and species selections, but no tuberosities can be found on resistant rootstocks. In contrast to the German experience, there was no apparent damage to these nodosity-laden rootstocks unless they contain *V. vinifera* parentage. These vineyards were planted on relatively deep, fertile soil and are irrigated when necessary, though they do receive summer rainfall.

In summer 1997, we toured the Pannon Agricultural University vineyards and western and central Hungary inspecting vineyards for presence of phylloxera. As a result of economic restructuring, many of these areas are mixes of abandoned and cultivated vineyards.

As in Germany, there are many "escaped" rootstock vines, mostly 5C, 5BB, and seedlings of 5BB, growing nearby and throughout abandoned vineyards. The young leaves and shoot tips of these vines were covered in leaf galls. We also found leaf galls on Riesling. Teleki rootstocks had nodosities, but none of the vines appeared to be damaged. Vineyards in western Hungary are planted on shallow soils and hillside slopes, but they receive ample winter and summer rainfall.

Phylloxera in California

Nodosities (galls caused by phylloxera feeding on root tips), are common on many rootstocks and have been seen on 5C, 5BB, 110R, 3309C, St. George, and others in California vineyards. This is particularly common in areas where interplanting with resistant rootstocks is practiced as a cost-saving alternative to removal and replanting of AXR-1 or own-rooted vineyards.

While nodosity feeding on newly planted rootstocks can slow vine growth in the first year, phylloxera are frequently present in vineyards without causing serious damage to resistant rootstock. There have been no examples of resistant rootstock failure from nodosities in California. Tuberosities are considered necessary for vine death. These swellings on mature roots crack and split the bark, allowing entry of damaging fungi which girdle the roots and lead to vine death. However, the death of vines planted on *V. berlandieri X V. riparia* rootstocks in Germany is apparently occurring because of nodosity damage alone.

Phylloxera on 5C

Phylloxera populations found on roots of 5C in California were analyzed along with Hungarian and German populations using excised root bioassays and

AUTHORS

Professors Jeffrey Granett and Andrew Walker have been collaborating on grape phylloxera research for 15 years. Their areas of expertise include: phylloxera biology and damage, integrated pest management for phylloxera, resistance and susceptibility to phylloxera, genetic diversity of the pest, genetics of resistance in *Vitis* species, and production of new phylloxera resistant rootstocks.

Dr. Laszlo Kocsis is a Hungarian rootstock specialist who worked with Granett and Walker from 1996 to 1997. He organized visits to Hungarian vineyards for Walker and Granett and studied aggressive Hungarian populations of phylloxera while at UC Davis.

Dr. Amir Omer is a post-doctoral researcher in Granett's lab. He studies how phylloxera and fungi interact to cause vine decline, works on perfecting the root bioassay, and on phylloxera's population dynamics in the soil.

Dr. Hong Lin is a post-doctoral researcher in Walker's lab working on the genetics of phylloxera resistance. He evaluates their genetic diversity.

Astrid Forneck, from the University of Hohenheim in Germany, is completing her PhD in Walker's lab. She developed a tissue-culture-based assay for studying phylloxera biology and resistance and is now studying the level of genetic diversity in European phylloxera and how they adapt to new hosts.

Matthias Porten is pursuing a PhD in professor Ernst Ruhl's lab at the Geisenheim Research Institute in Germany where much of the early work on aggressive phylloxera strains was conducted. He is studying the causes for the decline of V. *berlandieri* X V. *riparia* rootstocks in Germany and the integrated pest management of phylloxera.

Walker and Granett first heard about phylloxera damaging the Teleki rootstocks in a 1994 Weisbaden Growers bulletin by J. Hirschmann and W. Schlamp. They were able to import these aggressive phylloxera under quarantine from Germany and Hungary in 1996 and began studying their feeding behavior and examining them genetically. In summer 1997, Granett and Walker went to Hungary for a research conference and later toured vineyards and research stations in central and southern Hungary, looking at phylloxera feeding.

Granett and Walker were not able to visit Germany, but Forneck and Porten provided first-hand observations and photographs of the German problem. They also imported more phylloxera populations, which are now being studied in the labs of Granett and Walker to determine how these phylloxera are able to feed on "resistant" rootstocks and if there is a genetic basis for this behavior.

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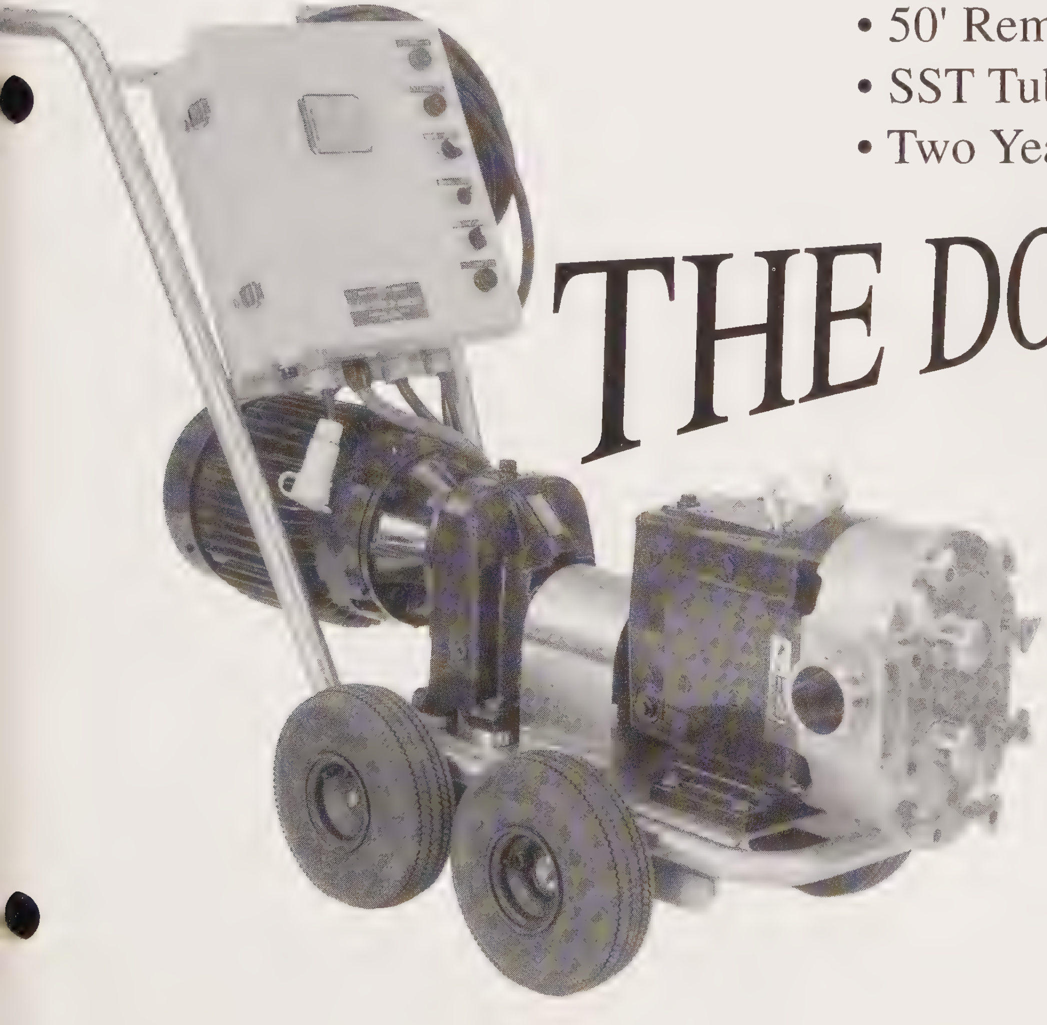

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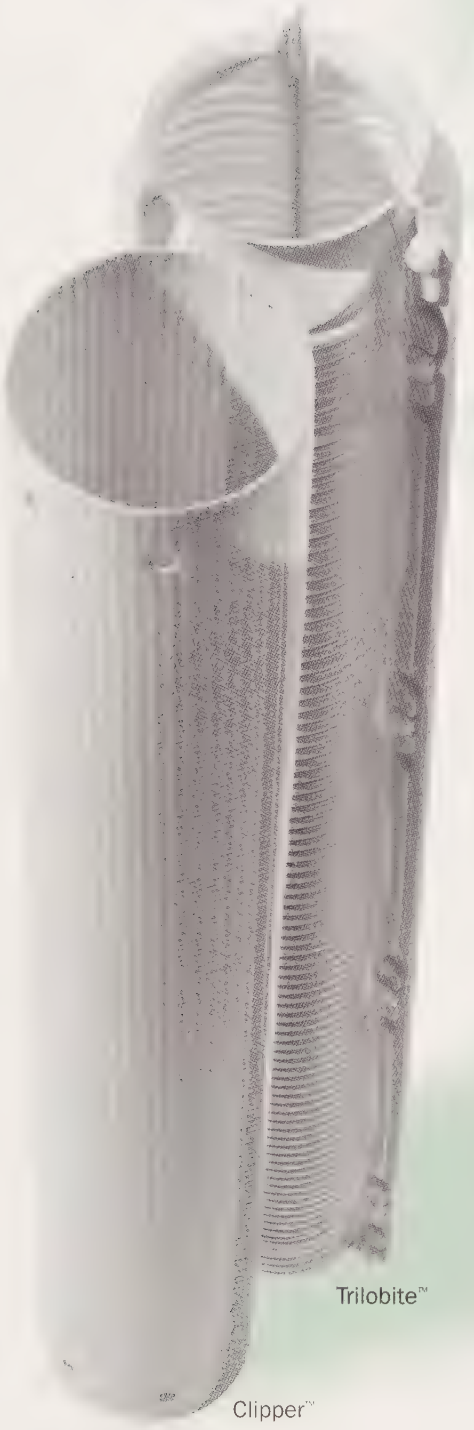

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were found to be distinct from biotype A or B. These genetically distinct California and European phylloxera established on 5C in root bioassays, but the level of feeding and reproduction on tuberosities tended to be much less than that of type B phylloxera on AXR-1 root pieces or type A on Cabernet Sauvignon root pieces. In addition, these 5C phylloxera fed relatively poorly on Cabernet Sauvignon roots. Nodosity feeding was significant and suggests that populations can grow on field roots.

Does this situation pose an immediate risk to the continued use of 5C in California? Probably not. While nodosities are seen on roots of 5C in Hungarian and Californian vineyards, no vineyard decline has been observed.

The German *V. berlandieri X V. riparia* experiences are odd because vines were damaged with nodosity feeding only. Several factors, not found in the other areas considered, may contribute to this unusual occurrence. These German vineyards have extremely high phylloxera pressure both from surrounding leaf galls and the previous use of 26G. Supplemental irrigation is forbidden by German agricultural laws even though the soils are often shallow.

Weed control by mechanical cultivation damages surface roots and (when water is available) induces development of more root tips for phylloxera to feed on. Thus, it appears that the German viticultural situation is responsible for nodosities being associated with vine death.

In Europe, leaf galls support many phylloxera that crawl off searching for new leaves to feed on. These crawlers can be blown into vineyards where they can feed on grape roots. The California climate does not encourage leaf galls, and they are rarely seen. Therefore phylloxera populations can only be high if root systems support them.

In California, irrigation is practiced for vineyard establishment and is a normal part of virtually all management plans. 5C is a good example of a rootstock that is dependent upon adequate irrigation for good growth; 5C will not survive without it in some California regions. If phylloxera were creating nodosities on 5C planted in a site without sufficient irrigation, this "root pruning" would likely have very negative effects on vine survival — as seen in Germany.

By European standards, California grapevines are typically planted on excessively fertile and deep soils. This allows rootstocks to produce many and deeply penetrating roots so that vines are less dependent on surface roots for water. Damage to surface roots from cultivation is of minor consequence in California, whereas in Germany it can be significant, adding to the damage already done by phylloxera.

Protecting California plantings

What are we doing to evaluate the risk that phylloxera may pose to California plantings of *V. berlanderi X V. riparia* rootstocks? In 1997, Dr. Kocsis visited the UC Davis labs of Granett and Walker. He tested phylloxera from Hungarian vineyards and rootstock plantings, including phylloxera from the sites where Teleki

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made his selections for phylloxera resistance 100 years ago. We confirmed that these phylloxera feed more aggressively on 5C and SO4. They strongly preferred feeding on the root tips, but did feed to a limited degree on mature roots.

We are also examining the DNA of about 60 European phylloxera collections from Germany, Switzerland, Austria, Hungary, France, Italy, Sicily, and Spain. Most of these collections were made from *V. berlandieri X V. riparia* rootstock leaf galls.

Preliminary results found that genetic diversity is not great and that phylloxera do not seem to be clustered by geographic location. These results suggest that although phylloxera have been in Europe for almost 150 years, they have not diversified much. It may be that the overwhelming use of *V. berlandieri X V. riparia* rootstocks in European vineyards has contributed to reducing overall genetic diversity by favoring only those genotypes capable of feeding on their leaves and root tips.

How do phylloxera adapt?

Can phylloxera adapt to new hosts and how is this accomplished? To answer these questions, we have been studying the biology of phylloxera in California and in its native range. Phylloxera's life cycle in the Midwest and parts of Europe has two parthenogenetic stages where all individuals are females, each capable of producing hundreds of offspring without sex. One stage occurs on the leaves and the other on roots. The two stages are bridged by individuals from root colonies capable of producing both male and female offspring which mate and produce an "overwintering" egg. When this egg hatches, it begins feeding on new leaves, starting the above ground cycle.

Our observations in the wild and in lab cultures have found many variations of this life cycle which suggest sexual matings might occur in both the parthenogenetic root and leaf colonies. If sexual matings occur, even at relatively low rates, the genetic variability of phylloxera would increase, allowing them to adapt to new hosts more easily.

How phylloxera adapts to new hosts and how quickly this adaptation occurs are also important questions. We have started putting type A and B phylloxera on tissue culture-grown 5C plants. Any survivors will be transferred to other tissue-cultured 5C plants. Over many cycles of culture and transfer, we should be able to select better adapted phylloxera, and use DNA analysis techniques to examine how they change and adapt.

We can monitor genetic changes that occur by testing phylloxera DNA at various intervals and comparing patterns with those of the original colonies. We can observe changes in phylloxera's feeding, reproductive ability, and the damage they cause to the 5C host plants. One possible outcome is that type A and B phylloxera cannot adapt to 5C and that adapted strains come from other sources of pre-existing genetic variation in phylloxera populations.

Conclusion

The long and successful use of phylloxera-resistant rootstocks over the last 100 years is very uncommon in the annals of agricultural crop pest resistance. Most often, new forms of resistance must be bred on a much shorter interval to combat new strains of pests. German observations of *V. berlandieri X V. riparia* rootstock failure may signal an end to their resistance. However, it is likely that phylloxera have been able to feed on these root tips for quite some time and that farming practices and site conditions are critical for enabling the observed failures.

We have seen more aggressive forms of phylloxera on 5C and related rootstocks in Germany, Hungary, and California. Does this mean that growers should abandon the use of 5C and other *V. berlandieri X V. riparia* rootstock? No, but rootstocks should be selected to best match their characteristics to soils and soil-borne pests at a given site. It would be unwise, therefore, to plant 5C in California on a shallow soil without plans for supplemental irrigation, whether or not a few (or billions) of phylloxera were present. ■

The authors gratefully acknowledge the research support of the California Grape Rootstock Improvement Commission, the American Vineyard Consortium, and the Viticulture Consortium.

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JOSEPH PHELPS VINEYARDS

BALANCING VINES FOR SUPERIOR Cabernets

by Eleanor & Ray Heald

Joseph Phelps Vineyards (St. Helena, CA), has received recognition for its Napa Valley Cabernet Sauvignons, including the ultra-premium, limited bottling Insignia. But according to winemaker Craig Williams, it's only in the 1990s that the Phelps Cabernet Sauvignons have really come into their own.

Two Phelps vineyards produce superior grapes and have become the backbone of the Cabernet Sauvignon program. Farming practices in each vineyard strive to achieve individually balanced vines.

To understand how the Cabernet Sauvignons have developed at Phelps, Williams believes it is essential to look back to the early 1970s, when owner Joseph Phelps got into the wine business to make varietal wines. "Back then, we didn't talk much about vineyard technology," Williams recalls. "We only spoke about 100% varietal wines, because the industry was just coming out of generic blends."

At that time, California's vineyards were planted in what Williams calls the two-wire system with 8x12 spacing on AXR-1 rootstock. Cross arms were popular because prevailing thinking was that fruit needed to be cradled in shade. Sun exposure was considered inappropriate since it kept skin character from being soft and delicate. Growers turned on overhead sprinklers and grew good fruit, or so they thought.

European connection

But visiting European winemakers said, "This is all wrong; you can't make quality wine if you irrigate," neglecting to mention, of course, that unlike California, rain is normal during the growing season in most of Europe.

Because these European remarks haunted California winemakers, Williams says, more attention was paid to better irrigation methods, such as drip irrigation, soil moisture status monitoring, and drainage. Along with that, in the early 1980s, came better canopy management that reduced the "veggies," corrected high pH, high TA, high K^+, and out-of-balance wines.

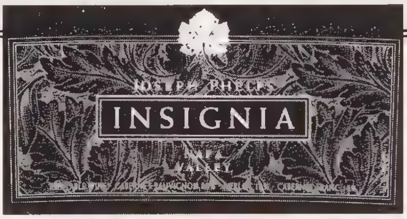
At the same time, Joseph Phelps Vineyards realized that the home vineyard in St. Helena was not yielding high quality Cabernet Sauvignon. Rather than struggle to make a silk purse out of a sow's ear, Phelps began to search for better sites on which to grow Cabernet Sauvignon.

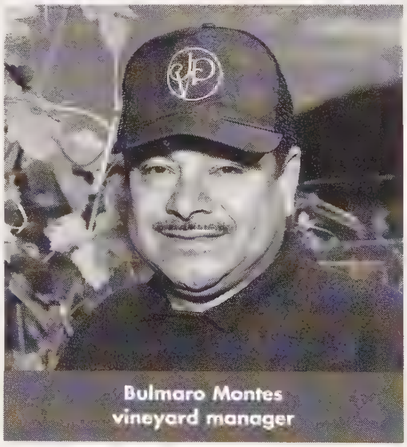
In 1983, Phelps bought two vineyards. Las Rocas Vineyard in the Stag's Leap District is highly-prized for both Cabernet Sauvignon and Merlot, and Banca Dorada Vineyard in the Rutherford American Viticultural Area (AVA) produces the grapes considered essential for Insignia and Phelps Napa Valley Cabernet Sauvignon.

Banca Dorada

Banca Dorada Vineyard is 33 acres on Manley Lane in the southwest corner of the Rutherford AVA at the base of the western hills with a slope of 1% to 2% and south-southwest exposure, allowing vines to receive morning sun.

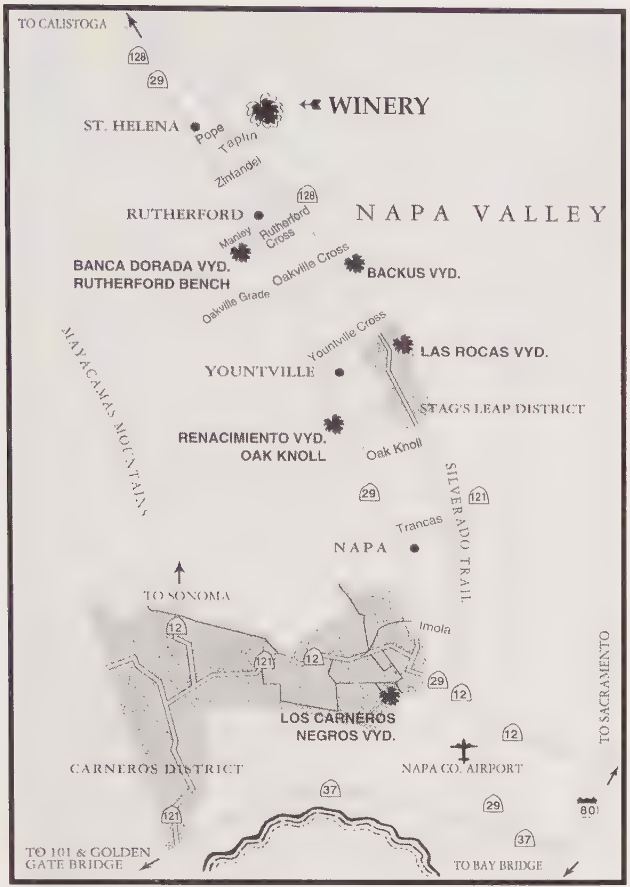
In 1983-84, the first Cabernet Sauvignon plantings were mainly on AXR-1 with small blocks of 5C and 110R to evaluate if the two rootstocks devigorate vines and produce higher quality grapes. Vines were planted 7x11 in slightly gravely, Pleasanton clay loam, situated on an alluvial fan. Here, top soil depth is greater than seven feet, and the subsoil profile and texture remain the same for a depth of 20 feet. The soil is well-drained, but has a high water-holding capacity. Supplemental irrigation of 40 to 60 gallons per vine per year is provided.




Bulmaro Montes
vineyard manager

Today, the rootstock mix includes 101-14, 110R, 3309C, 5C, and 420A. Phylloxerated vines on AXR-1 were pulled over five years finishing after the 1997 harvest. Williams believes the early rootstock choices were good. "In some years, 5C outperforms 110R and in others, it's the reverse," he maintains.

Bulmaro Montes, a native of Oaxaca, Mexico, joined the Phelps vineyard crew in 1973, was promoted to vineyard manager in 1983, and is now a vice president.



✱ INDICATES JOSEPH PHELPS' ESTATE-OWNED VINEYARDS

"In the mid-1980s, we began implementing ways to improve fruit quality," Montes says. "Instead of looking at the vineyard as a whole, we're trying to look at individual vines and balance them."

While the soil profile at Banca Dorada is consistent, vines on different rootstocks ripen at different times, according to Montes. The main difference is in the wine chemistry and can be tasted. As a result, grapes from different rootstock blocks are kept separate through the winemaking and barrel ageing regimes.

New developments at Banca Dorada are spaced 9x5 (968 vines/acre). They are cane-pruned with vertical shoot positioning (VSP). Montes believes that cane pruning is preferable when the goal is to slow down vine growth in high-vigor sites. He admits that cane pruning is complicated. It takes about three years to train a worker to cane-prune well. However, Phelps has a majority of vineyard workers with 15 to 20 years experience.

Vines are pruned January through March, then shoot-thinned and leafed in early May, on the morning side only. In late June, they are hedged for the first time, on the top and sides. Vines on 101-14 have less growth, set better, and are overall more self-regulating. Both 3309 and 110R are much more vigorous rootstocks, so those vines require more hedging and thinning.

Over the last five years, to increase organic matter and nutrients, a mix of fescue and clovers was seeded as a cover crop in alternating rows. Clover, which Montes thinks attracts sharpshooters, is excluded in areas where Pierce's Disease is problematic. If vines need further devigoration, a cover crop will be planted in all rows.

Las Rocas

Phelps began replanting Las Rocas Vineyard in 1985 with 5C, 110R, and 3309 rootstock. Today, 39 acres of Cabernet Sauvignon and five acres of Merlot are planted on an alluvial fan in gravely, clay-rich soil with southeastern exposure receiving morning sun. Wine from the vineyard is distinguished by intense berry and cassis flavors, a smooth, velvety texture, and the ability to age well.

Additional redevelopment in 1987 used rootstocks (mainly 101-14, 110R, and 5C) chosen for devigoration. Vines are close-spaced at 3.5x7, approximately 1,777 vines/acre. Rootstocks 3309C, 420A, and 5BB were also planted in minor percentages where they were best-suited to the drainage potential of the blocks.

One pressure at Las Rocas is Pierce's Disease. "This is the site offering power to the Cabernet wines," Montes states. "But it does offer more challenges."

Phylloxerated vines on AXR-1 were pulled post-harvest 1997. After applying soil amendments and deep ripping five feet in four directions, 101-14 rootstocks will be planted in spring 1998.

No cover crops will be planted the first year. In the second year, cover crop is established. After that, Montes predicts that seeds from existing cover crops in alternate rows will seed the other rows of the new planting.

He considers 5C an unusual rootstock. In some blocks, uniform growth can be seen, but in others, it's uneven. "I can't explain this," Montes admits. "Perhaps, the original plant material was not clean. I like 5C, though, because it creates more pleasant aromas in the resulting wine."

Vines are cane-pruned to two canes with 24 buds total, two-bud spurs for the following year, and a short cane in the middle serving to fill the trellis. This short cane is removed at pruning the following year, and a new short cane is chosen. "The result I want is loose clusters without nesting," Montes states.

"Using closer spacing at Los Rocas, we hoped for larger yields (in tons/ acre), but this turned out not to be true," Williams explains. "Yields have been similar to more standard plantings. Our current thinking is that the vines will be longer-lived and continue to give us the quality fruit we are picking today.

"At both sites, we realize that it's a totality — farming, weather, water status, soil, and soil drainage — that really defines grape quality."

While the vineyard design accommodates machine picking, grapes are hand-harvested.

Balancing vines

Montes believes that making judgments by pruning weights may work to balance a vine if one weighs each vine. An average doesn't work because one could be weighing a greater percentage of more vigorous vines than weaker ones.

"We use our eyes and experience to make judgments about vine appearance," Montes adds. "We make pruning decisions based on the thickness of the cane. Thicker canes mean the vine is more vigorous, so more wood is left on at the time of pruning."

Montes uses crop thinning to balance the vines. Initially the crew would go through the vineyard and remove a stated number of clusters from each vine without regard to the individual vine. Today, however, the vineyard is being rebalanced by thinning according to the needs of each individual vine once veraison is about 90% complete.

The greatest difference in balancing vines has come from soil amendments, Montes maintains. Some fertilizers are put through the drip system, but much work is done by hand. "Petiole samples guide us to correct unbalanced nutrients within the vine."

Fertilization begins with irrigation startup in mid-June, after bloom. Using neutron probes for moisture monitoring has been an active part of water management at Phelps since the mid-1980s.

To sustain vine growth, irrigation at 8 to 12 gallons per week per vine continues as late as mid-September, but once flavors begin to develop and there's more to taste than sugar, water is cut.

On average, once irrigation is stopped, it's about two weeks until harvest under normal weather conditions. This irrigation regime lengthens the maturation process. "It tricks the vine into 'thinking' it's still working," Montes remarks.

Both Las Rocas and Banca Dorada have significant soil variation within vineyard blocks. Depending on its soil profile, an individual vine may have three emitters or perhaps none.

For the next generation of replanting at Phelps, Montes and Williams plan to spend more money on soil preparation and ripping as deep as possible. They say blocks will be small with respect to a given soil profile, so vines planted within the block will ripen at the same time.

Montes prefers to field-bud replanted blocks. "By planting rootstock only, we gain nearly a year to change our minds about topwood," he explains. "The method also eliminates the need for grow tubes."

Clean scion wood from the respective sites was used for replanting at both Banca Dorada and Los Rocas. Backus was the principal Cabernet Sauvignon selection.

Quality turnaround

"Keeping small lots separate, for incorporation into the blend down the road, makes the difference between a very good wine and one that is superior," Williams notes.

The quality turnaround that resulted from these efforts to balance vines at Phelps came in 1989, Williams and Montes believe. This was a difficult and wet harvest with high acid, low pH, and not nearly the ripeness of 1990 or 1991. "But we saw good fruit quality, particularly in Stag's Leap, with ripeness, red and black currant fruit tones despite a large crop," Montes says.

"In 1991, we really took notice," Williams maintains. "It was another large crop, but our Cabernet Sauvignon was picked above 24° Brix with concentrated fruit. Everyone raved about the 1990 vintage saying it was better than 1985, but 1991 for us yielded dark, opulent, sweet fruit. We didn't do anything different in the winery, but the efforts to balance individual vines in the vineyard paid off."

Success in 1991 pushed vineyard efforts further. Now, vineyard nutrients are better monitored and different irrigation regimes schedule watering later rather than early in the growing season.

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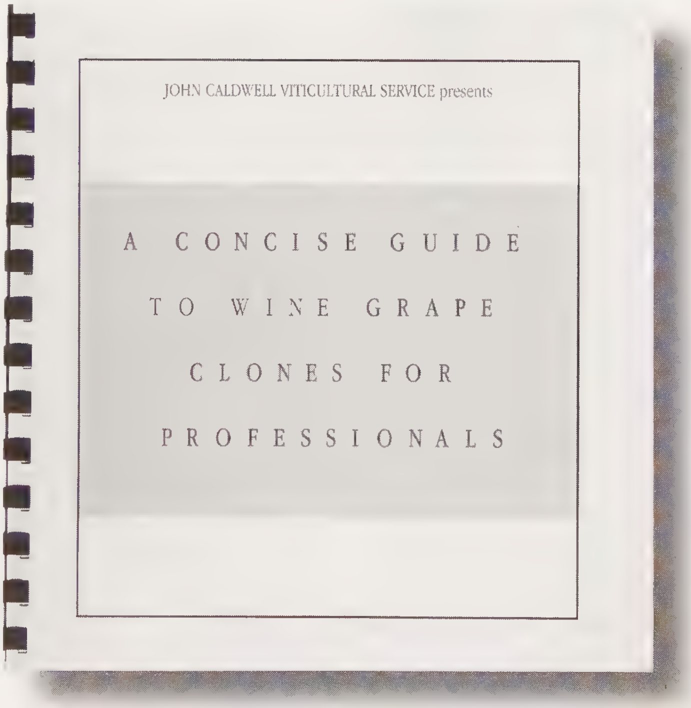
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At Phelps, all picking decisions are based on taste, analysis, and a good hunch about the year. In the past, grapes were harvested by sugar, pH, and acid. Then, picking decisions were made. Today, more input, including walking the vineyard, assist in making final picking decisions.

"We've learned a great deal in the last eight years. We're picking at better maturity levels. We monitor irrigation better; we thin leaves and bunches, and get light through the canopy. All of these factors give us the quality taste we're looking for."

From vineyard to the bottle

Very early in its concept, Phelps Insignia was intended to be the best wine of the vintage. On the drawing board, it could have been a Chardonnay or a Syrah. As a result, the 1974 Insignia was primarily Cabernet Sauvignon, while the 1975 Insignia was Merlot from the Stanton Vineyard, and the 1976 bottling was Eisele Vineyard Cabernet Sauvignon.

The first Bordeaux-varietal blend (50% Cabernet Sauvignon, 30% Merlot, and 20% Cabernet Franc) was from the 1977 vintage. "This took Insignia to another level," Williams contends.

But Williams admits that, during these years, aroma profiles influenced the blending process. From 1977 through 1988, vineyard sources came and went as growers' vineyards were developed, then sold. It was not until 1989, when both Los Rocas and Banca Dorada vineyards produced consistent quality fruit, that these sources became the mainstay of Insignia and the Napa Valley Cabernet Sauvignon.

"The minty component found in some of the earlier Insignias was controversial," Williams confides. "Many consumers enjoyed it while others disliked its dominating character. Our primary focus over the years has always been the flavor, balance, and quality of tannins, and we're attempting to refine those attributes through our focus in the vineyard."

While the Phelps Napa Valley Cabernet Sauvignon and Insignia are in part based on the fruit grown at Las Rocas and Banca Dorada, Insignia is a different style and quality. "This emanates from the best fruit chosen for it," Williams says. "Additionally, 100% French oak is used for Insignia, and to differentiate, there's American oak in the Napa Valley Cabernet Sauvignon barrel mix."

Vintage analysis

A comparative tasting of the 1990 and 1991 Phelps Napa Valley Cabernet Sauvignons illustrates what Williams and Montes say about balancing vines. The 1990 blend is 85% Cabernet

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Sauvignon (19% from Los Rocas in Stag's Leap and 31% Banca Dorada in Rutherford), and 10% Merlot and 5% estate-grown Cabernet Franc (both from Rutherford.) The 1991 is 100% Cabernet Sauvignon, 34% from Stag's Leap and 27% from Rutherford, with the remainder from independent growers.

Visually, the biggest difference between the 1990 and 1991 is depth and density of color. The 1991 is distinctly darker. While maintaining earlier that 1991 turned the corner for superior Cabernet Sauvignon lots, Williams also puts the 1991 in perspective by saying, "Color depth is a hallmark of the vintage. We are farming to repeat this in succeeding vintages because 1991 raised the bar."

Williams points to the fuller, richer, sweeter texture, and better mouthfeel of the 1991, even though it had a higher TA and lower pH at bottling than subsequent vintages, such as 1993 or 1994.

"I believe the 1991 vintage will go down in our history as a great wine both for the Napa Cabernet and Insignia. It's not that our Cabernets from 1991 are bigger; they are overall better balanced and that happened in the vineyard, not the winery."

What 1991 demonstrated to Williams was that crop load is not some "magic" number for quality, and achieving ripeness is a matter of balance, stemming not from a vineyard perspective, but from an individual vine emphasis.

Vintage 1993 was an early-ripening year, yielding a smaller than average crop. A heat-burst at the end of August, caused sugars to escalate rapidly, and Williams remembers some growers had sugars at 24.5° Brix on Labor Day. Williams and Montes decided on a delay tactic. "Keeping irrigation going after the heat spell made a significant difference in flavor development," Montes notes. They picked between September 8 and 30 that year. "By way of comparison, in 1991, we picked Cabernet Sauvignon in mid-October."

Cabernet Sauvignon flies solo again in the 1993 Napa Valley Cabernet Sauvignon, 12% from Stag's Leap and 22% from Rutherford. "Between 1990 and 1993, Montes learned that Banca Dorada Vineyard on Manley Lane consistently ripens earlier than Stag's Leap. Banca Dorada fruit color is deeper with higher tannin and acid levels. The wine in some years needs the help of fruit from Stag's Leap to soften the overall impression.

Style elements

Both the 1991 and 1993 Phelps Napa Valley Cabernet Sauvignon are consistent in color depth and texture. The 1993 had more aggressive tannins as fruit because it was picked earlier, so Williams adjusted winemaking techniques used in 1991 to take this into account.

"In spite of the shorter growing season in 1993, we were able to showcase the fatness, texture, sweetness, and roundness that is vineyard and fruit-derived," Williams says. "We keep the 1991 as a benchmark and are striving for that level of consistency."

The 1994 vintage, with Cabernet Sauvignon picked through late October, is similar to 1991 with respect to harvest dates. A small crop resulted in the Napa Valley Cabernet Sauvignon and Insignia having exquisite balance with an extra aroma kick.

The Napa Valley Cabernet Sauvignon blend is 95% Cabernet Sauvignon (22% Stag's Leap, 29% Rutherford) 4% Cabernet Franc, and 1% Merlot.

Insignia 1994 is 88% Cabernet Sauvignon (41% Rutherford, 18% Stag's Leap, 3% Backus Vineyard in Oakville, and 26% from independent growers), 10% Merlot, and 2% Cabernet Franc.

The 1994 Cabernet Sauvignons have greater balance and aromatics. In terms of longevity, Williams likes 1993 and 1995 because of balanced, mature tannins.

Williams insists that ageability has nothing to do with pH, but everything to do with the wine's phenolics. Principally, it's the quality of tannins that do that.

Beyond vineyard tech

At Joseph Phelps Vineyards, balancing vines for superior Cabernet Sauvignon is not a buzz phrase implying a quick fix. It has taken 15 years of painstaking vineyard management to yield Cabernet Sauvignon of extraordinary quality. Vineyard technology played an essential role. But the interaction between vineyard manager Bulmaro Montes and winemaker Craig Williams refined improvements as only human interplay can. ■

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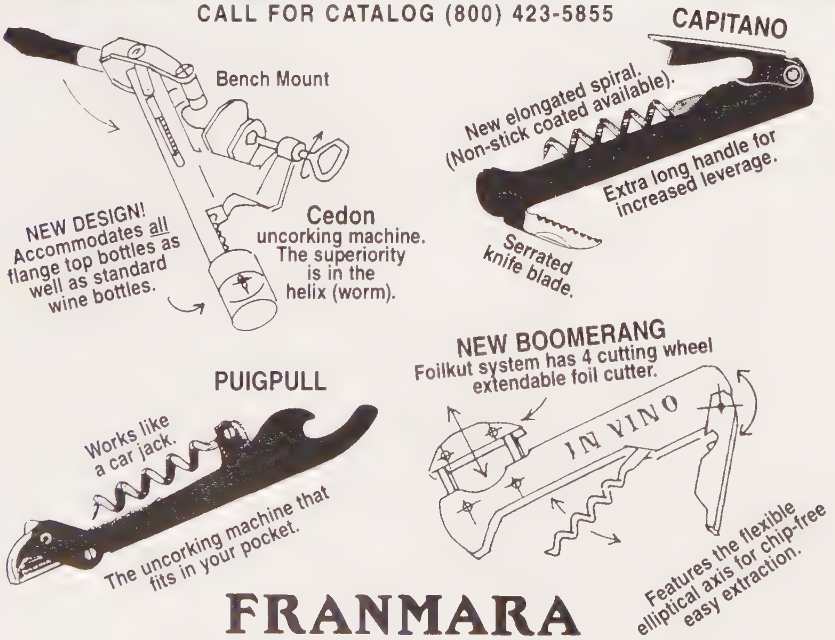
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by Eleanor & Ray Heald

"Rosés are making a comeback because they are serious, dry, and pair well with the current focus on Mediterranean cuisine and overall healthy food attitudes," says Craig Williams, winemaker for Joseph Phelps Vineyards (St. Helena, CA). "As user-friendly wines, they combine the attractive color and aroma of a red wine with the delicacy and balance of a white."

Simi Winery's (Healdsburg, CA) president Zelma Long believes that the marketing issue with Rosé is simply differentiation. "It's not a white Zinfandel," she states emphatically. "It's not positioned to compete with it. It's higher in price and made with more sophistication. It appeals to a different customer.

"Yet, it is a challenge for Rosé makers to say we're different. This is important because the consumer sees Rosés and blush wines in one large category, even though there have been small quantities of some extremely high quality, sophisticated, drier styles of Rosé made over the last 10 years."

With Pacific Rim cuisines

Roy's Hawaiian restaurants capitalize on the concept of spicy foods served in a warm climate calling for a chillable wine with more flavor than a white, yet a lighter finish than most reds. Wine buyer and managing partner Randy Caparoso indicates that "Roy's doesn't portray the pink stuff as the be-all and end-all at 5% of total sales. But at any time, in all of our five restaurants, you will find solid choices because Rosés are such naturals."

Caparoso believes that pink wines work with Roy's Euro-Asian Pacific style food in much the same way they do with Provençal and Ligurian-influenced foods along the French Riviera. He was personally awakened to the possibilities of Rosé with regional Hawaiian food in 1989 during a first visit to Cassis, Bandol, Nice, and Monte Carlo in southern France.

What occurred to him was the fact that, like food in southern France, Hawaii's cooking is very strong, vivid, and seafood-oriented. There is also a pervasive salinity of the sea. Hawaiian seasonings are very Asian, while in southern France, one finds the garlic-olive-herb-tomato theme. Either way, the cool, fresh, soft yet fleshy qualities of Rosé wines fill the bill for such foods.

"I believe that the 'flesh' of pink wines, as opposed to the sharper edge of white wines and the harder texture of reds, is what makes such wines ideal with strongly-flavored cuisines of the sun," he explains.

Over the years, Caparoso has settled on a handful of seriously dry selections ranging in price from $23 to $28 per bottle. None are served by the glass. Some of the pink wines have become quite rare, which works fine within Roy's short wine list format of about 64 wines. Among tried and true Rosés on the list is Domaine Bruno Clair Marsannay Rosé discussed in the Rosé varietal review (see page 38).

"Pink Tavels generally deserve their reputation as dull and insipid plonk," Caparoso notes. "But pink Marsannay by Bruno Clair captures the charm and refinement of which pink wines made from Pinot Noir are capable.

"Rosé selections are judged immediately at the table. People either go crazy for them, or they don't. We find that more flavor and exuberance of fruit are not what the 'profile' pink wine drinker

Make way for Rosé!

Photo at Rumpus Restaurant by Fred Lyon

by Eleanor & Ray Heald

"Any true wine drinker will doubtlessly b impressed by your choice of something pink during the summer."

From the "Stop and Smell the Rosés" wine list at Rumpus Restaurant, San Francisco wants. Real Rosé drinkers simply prefer something that goes down easily with an extra degree of silk and finesse."

Seasonal success

From Memorial Day to Labor Day, owner Jim Kopp of Rumpus Restaurant (San Francisco, CA) invites diners to "Stop and Smell the Rosés" with his pink-colored, core list insert. Among two dozen still wine selections, ranging from $18 to $29 per bottle, 75% are served by the glass at $4.50 to $6.50 per six-ounce pour. Two Rosé Champagnes at $40 and $50 (neither served by the glass) are also listed.

A lighter, summer menu is introduced when the Rosé program gears up. Items with tomatoes, fresh garlic, and fresh rosemary are included to intentionally bring out the best qualities of Rosés. While this might indicate Provençal food style, Kopp quickly says this is not the Rumpus emphasis.

"Our food is very California in style, with the idea of using fresh, local ingredients, such as seafood and vegetables," he explains. "Chef Robert Price is classically European-trained, and his techniques are traditional, yet applied to the freshest of seafoods and produce."

An introduction to the Rosé selections on the Rumpus Restaurant pink list does some educating. "These are dry wines, having less residual sugar than most California Chardonnays, and a good deal more depth of flavor and character. Served chilled, they are versatile accompaniments to many flavorful foods and are refreshing during the warm summer months. In fact, most Europeans make dry Rosé their wine of choice during the summer. We have compiled a group of delicious dry Rosés for you to try, and we encourage you to experiment. Don't be hung up by 'fear of pink wines,' as any true wine drinker will doubtlessly be impressed by your choice of something pink during the summer."

Kopp says that when the program was launched four years ago, it stemmed from "a moment of temporary insanity." It got such tremendous response, it has become a regular warm weather feature. Kopp has started a similar, 12 Rosé short list, at his new Gibson restaurant (San Mateo, CA).

Throughout the Rosé-feature months, some allocated wines are dropped from the list when the supply runs out and others take their place. "Actually, 1997 was the first year several wineries put Rosé on allocation," Kopp indicates. "This may be a sign that sales are picking up."

Kopp adds that Rosés become available at different times. He wants the freshest selections and gets the bulk of the current California vintage to start the program, but imported Rosés from the same vintage may arrive as late as August.

Kopp rejects the concept that Rosé is a luncheon wine and says that he sells "a ton" at dinner. "But when the Rosé program is in force, as a category, it is our biggest seller during lunch," he notes. "It sells more than Chardonnay. From a total volume standpoint, however, we easily sell the most Rosé at dinner, primarily because of the way staff is trained. They encourage diners to drink it with our food because of Rosé's versatility."

Waitstaff training

Kopp kicks off each Rosé season with a three-hour formal waitstaff training/ tasting, bringing in producers when possible. Staff knowledge of the wines and their ability to recommend them with confidence drives the Rosé program forward.

Every other week during the Rosé campaign, Kopp conducts a small tasting with waitstaff, teaching them more about Rosé styles or placing emphasis on a varietal or varietal-blend Rosé. This is also the time when any new pink wines added to the list are introduced.

In pre-shift meetings, Kopp recommends specific foods particularly complementary to Rosé wines. He works the floor with servers and recommends the pink list to diners. "Generally, if the diner doesn't know me, they look at me like I'm from outer space," he adds. "But what works best is telling people to 'try it.' We'll bring the bottle to the table, offer a sample pour, and say, 'If you don't like it, you don't have to buy it.' It's a risk, but it's very rare when a diner doesn't enjoy the suggested wine."

Winery marketing

Bernadette Byrne, McDowell Valley Vineyards (Hopland, CA) marketing director, encourages restaurant accounts with, "Rosé is such a versatile wine that it really suits everything from sushi to ribs. The key to pairing Rosé with food is to keep in mind the typically high acid and bright flavors, and relatively low tannins. These qualities make it a perfect match for spicy foods ranging from Thai to Cajun cuisine. Smoked meats and seafood are also excellent matches as Rosé has enough body to balance the

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richness of, for example, smoked salmon, and the fresh, crisp flavors provide a clean finish.

"Food dishes which feature roasted red and yellow peppers, dried cranberries or cherries, sun-dried tomatoes, or citrus work very well with the bright strawberry flavors found in most Rosés. Today's chefs often prepare lighter, healthier menu items, like Orange Roughy with a Citrus Salsa, which would crucify most barrel-fermented Chardonnays but work beautifully with Rosé.

"The trick really is to get people to try Rosé. I pour Grenache Rosé at every consumer event in which McDowell Valley Vineyards participates. Overcoming the initial 'no thanks' with a query of 'Do you like sushi? Thai food?' and a description of how well Rosé works with those foods is usually enough to get people to try our Rosé. The typical response is 'You're right — this is good!' hopefully leads to more growth for the Rosé category.

Firestone (Los Olivos, CA) focuses on Rosé for Thanksgiving as a wine that pairs well with the wide variety of flavors on the traditional American Thanksgiving table. Pedroncelli (Geyserville, CA) also gives its Zinfandel Rosé a holiday emphasis, suggesting how well it pairs with turkey and ham.

Joseph Phelps has witnessed overseas success with sales in Sweden, the UK, and Japan, in addition to North American sales. In addition to sales in Germany and Switzerland, Simi Winery has also fared well in Pacific-rim countries. At home, good sales are in restaurants with Mexican and Thai cuisines. Twin Hills Winery (Paso Robles, CA) adds Chinese eateries to the list.

"Hip bistros throughout the U.S. understand the sophistication of Rosé," Domaine de la Terre Rouge (Fiddletown, CA) winery owner Bill Easton says. "Although Vin Gris d'Amador is a relatively high-end Rosé, it is the lowest-priced wine we sell in our tasting room. If for no other reason than that, people buy it."

"Priced at $10 retail or below," says Dan Gehrs, "the Zaca Mesa Rosé is instantly likable. That's been the key to success for Z-Gris."

The bottom line

Wineries with brisk Rosé sales have either tagged them with a popular price or creatively positioned them with food styles, both in the U.S. market and abroad. ■

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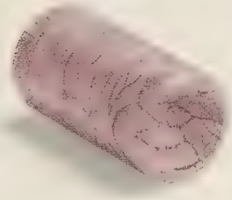

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Why not Rosé?

by Eleanor & Ray Heald

Grape sourcing, grape and wine pricing, and profitability are the primary factors affecting Rosé production according to Simi Winery's president Zelma Long. Making a case for Rosé, she says, "While Simi's Rosé of Cabernet Sauvignon is not as profitable as other wines, it has maintained both consumer demand and a niche augmenting our main focus of Chardonnay, Cabernet Sauvignon, and Sauvignon Blanc."

The Rosé program at Simi started in 1973. "It has always been a wine for people who know and really love it," Long adds. "People who taste it for the first time invariably comment on its pretty color, fruitiness, and freshness. As white Zinfandel blossomed in the industry, those comments became more frequent because Rosé of Cabernet Sauvignon is much drier and it was a new taste experience. Consumers still tend to place Rosé in a blush wine category."

The major issue in Rosé production at Simi Winery has been grape costs. In the 1980s, Cabernet Sauvignon was $500 per ton, and it was possible to produce a profitable Rosé. But, today, at $2,000 per ton, things are difficult. Higher grape costs have reduced Simi's volume of Rosé of Cabernet Sauvignon. Ten years ago, it was 22,000 cases. Recently, depending on the vintage, production drifts between 6,500 and 10,000 cases.

There is a bottle price ceiling above which consumers are unwilling to pay. With rising grape costs, Rosé has become a less profitable bottling. Long stresses, however, that to make an accurate assessment, Rosé production costs need to be assessed in light of all wine costs understanding that Rosé has a fairly quick turn-over.

Rosé is not easy to make. To attain delicacy in the mouth, the issues of correct color and flavor extraction, without excess tannin, need to be addressed. Each vineyard is different and harvested grapes arrive at the winery at varying temperatures. Maintaining quality consistency is challenging.

Grape varietals define Rosé style

"The style of Joseph Phelps Vineyards Vin du Mistral Grenache Rosé has changed little since introduc-

tion in 1989," winemaker Craig Williams notes. "From a style standpoint, many Rosés are seemingly produced in a Vin Gris style that may have resulted from a *par saignée* in order to enhance the color of a red fermentation. These wines are generally lighter in color with delicate aromas and in some instances, are prone to a faster rate of oxidation.

"We have focused on a style that is perhaps closer to a light red wine with deeper color, more fruit and extract. It's a style that has set us apart from many other Rosés in the market. We intentionally went with a deeper color to attract consumers to a wine that, at the time, was perceived as a second class citizen because of its light color. Although its reputation rapidly is improving, there's still the image that Rosé is somehow a lesser wine, a perception that has existed since the early 1970s."

Since 1989, Phelps has been purchasing Grenache from a Monterey County vineyard that is soon scheduled for redevelopment. Noting that the Grenache qualities from Monterey County are not readily found elsewhere, Phelps has recently purchased and developed a Grenache vineyard including a few acres of Syrah near the original Monterey County vineyard.

As a blending varietal, Williams has used Cinsault when he can find it, but more often, he blends Mourvèdre or Syrah to add color depth.

Bruno Clair of Domaine Bruno Clair in the Burgundy appéllation of Marsannay takes exception to the concept that French Rosés are Vin Gris. Since 1919, his family has been making one of the rare Burgundian Rosés from Pinot Noir. The wine is made in a classic Rosé method.

Bill Easton of Domaine de la Terre Rouge makes a Provencal-style Rosé, but in the late 1980s, he did not have an excess of Rhône varietals and made his Rosé from old-vine Zinfandel grown on a cooler site that ripened late. At that time he paid $400/ton for the grapes. With Zinfandel so popular today, he lets that part of the vineyard hang and makes a red wine.

For Rosé, he now sources from a Grenache, Mourvèdre, and Cinsault vineyard in Fiddletown. In very warm years, grapes there ripen sufficiently to produce red wine, but in cooler years, they don't ripen above 22° Brix. Therefore, the decision was made to use this vineyard as the source for Vin Gris d'Amador.

Easton also makes the wine as a byproduct of a higher-quality red wine choosing the *par saignée* French method, drawing off juice from tanks to barrel to complete fermentation.

A single grape, Zinfandel, defines the Pedroncelli Rosé style. Winemaker Gary Martin explains that grapes are picked for a red wine at full maturity. Thirty to 40 gallons per ton are drawn from the bottom of the tank after 24 hours. The goal is to cold soak during this time period.

During one week of receiving Zinfandel grapes, 30- to 40-gallon fractions are drawn from each tank for Rosé production, generally. Half of the total amount may be added to a previously inoculated tank. After receiving, grapes are cooled overnight and thus when these fractions are drawn off, they are clear and cool. "This is the Pedroncelli style, and it has been made this way for 40 years," Martin notes. "It gives the wine body and full flavor with Zinfandel spicy characteristics and not as much light, tropical fruit as one might get in white Zinfandel."

Style first, grapes second

At Concannon, achieving a style, rather than sourcing a particular grape variety drives the winemaking. Winemaker Tom Lane refers to Righteously Rosé as a light red made to gain consumer acceptance. He has made it from Sangiovese, but in 1996, went to a blend of Rhône reds.

One might believe that a unifying theme among most Rosés is a lack of oak. But Tom Lane does not fit that mold. He barrel-ferments (inoculated in barrel at 20° to 22° Brix) the Cinsault portion of the Rhône-varietal blend.

At Firestone, Alison Doran explains that, early on, Firestone's Rosé was made from Cabernet Sauvignon vineyards with significant leaf roll virus which kept maximum sugars at 22.5° Brix. That vineyard was pulled in 1993 and replanted to Syrah and Merlot. At that point, Firestone considered dropping the Rosé program, but marketing managers objected.

To keep the program profitable and to use fruit from a young vineyard, Cabernet Sauvignon, as the Rosé grape of choice, was replaced by Cabernet

Featured producers and wines:

Angelo Pavan, winemaker
Cave Spring Cellars
Jordan, Ontario, Canada
Rosé *(Cabernet Sauvignon, Cabernet Franc, and Merlot)*

Tom Lane, winemaker
Concannon Vineyard
Livermore, CA
Righteously Rosé *(Mourvèdre, Cinsault, Marsanne, Syrah, and Muscats)*

Bruno Clair, owner/winemaker
Domaine Bruno Clair
Marsannay, France
Marsannay Rosé

Bill Easton, owner/winemaker
Domaine de la Terre Rouge
Fiddletown, CA
Vin Gris d'Amador *(Grenache, Mourvèdre, and Cinsault)*

Gary Eberle, owner
Bill Sheffer, winemaker
Eberle Winery
Paso Robles, CA
Counoise Rosé

Alison Doran, winemaker
Firestone Vineyard
Los Olivos, CA
Gemstone *(Grenache)*

David Munksgard, winemaker
Iron Horse Vineyards
Sebastopol, CA
Rosato di Sangiovese

Bernadette Byrne, assistant winemaker
McDowell Valley Vineyards
Hopland, CA
Grenache Rosé

Gary Martin, winemaker
Pedroncelli Winery
Geyserville, CA
Zinfandel Rosé

Craig Williams, winemaker
Joseph Phelps Vineyards
St. Helena, CA
Vin du Mistral Grenache Rosé

Kevin Hamel, winemaker
Preston Vineyards
Healdsburg, CA
Le Petit Faux *(Cinsault, Grenache, and Mourvèdre)*

David Ostheimer, associate winemaker
Simi Winery
Healdsburg, CA
Rosé Cabernet Sauvignon

Caroline Scott, winemaker
Twin Hills Winery
Paso Robles, CA
Paso Rose *(Zinfandel)*

Dan Gehrs, winemaker
Zaca Mesa
Los Olivos, CA
Z-Gris *(Grenache, Mourvèdre, Syrah, Cinsault, and Counoise)*

Franc when the Firestone Gemstone label was created in 1994. It was barrel-fermented below 8° Brix. The Cabernet Franc was subsequently budded to Chardonnay, but as there was a Cabernet Sauvignon surplus at that time, Cabernet Sauvignon got re-selected for Rosé.

Galliano Vineyard in Cucamonga became a source for 50- to -100-year-old Grenache in 1996 and constitutes the current Gemstone Rosé. Given a choice, Doran's preference for a grape varietal is Cabernet Franc because of the color, freshness, and manner in which it took to barrel fermentation creating a bouncy mid-palate among other complexing elements.

Niagara Peninsula

At Cave Spring Cellars, Cabernet Sauvignon, Cabernet Franc, Merlot, and usually Gamay constitute the wine simply labeled Rosé. "Gamay and Cabernet Franc are the key varieties for Rosé; Gamay adds the fruity character and Cabernet Franc adds the herbal aromas that our market appreciates," says Angelo Pavan, winemaker.

"The decision to make Rosé was an easy one for us because of the growing acceptance in our domestic market and as a necessary way of concentrating the remaining wine. In fact, demand far exceeds supply for our Rosé, and it usually runs out before the Christmas turkey season."

In 1996, the blend did not contain Gamay because of an exceptionally cool vintage. The Bordeaux varieties were harvested at much lower than normal sugar levels. The bulk of these grapes went into the Rosé as they were not ripe enough to vinify into our accepted style for these wines.

Usually, Gamay is 50% of the blend to enhance the berry/cherry flavors of the Rosé. But because of the cool vintage, there was more than enough fruity character in the Bordeaux varieties to support the whole blend.

For the 1996 Cave Spring Rosé, grapes were lightly crushed and allowed to warm up to between 50° and 60°F over four to five days. Must in some of the tanks was then pressed before fermentation. Other tanks were inoculated and pressed off about two days after the start of fermentation to extract more color.

In most years of typical harvest conditions for Ontario's Niagara Peninsula, about 10% to 15% of the juice is drained from all of the tanks, including Gamay, two to three days after harvest, usually around the start of fermentation. "We find it necessary in our cool climate to drain this percentage of the juice in order to concentrate the remaining portion and make a fuller wine by lowering the juice to skin ratio."

The Cave Spring Rosé blend is fermented around 60°F with a different yeast strain in each tank to add complexity. Most of the wine is fermented to dryness with a small portion stopped by lowering the temperature and added back to adjust the sweetness level to around 5.0 g/L.

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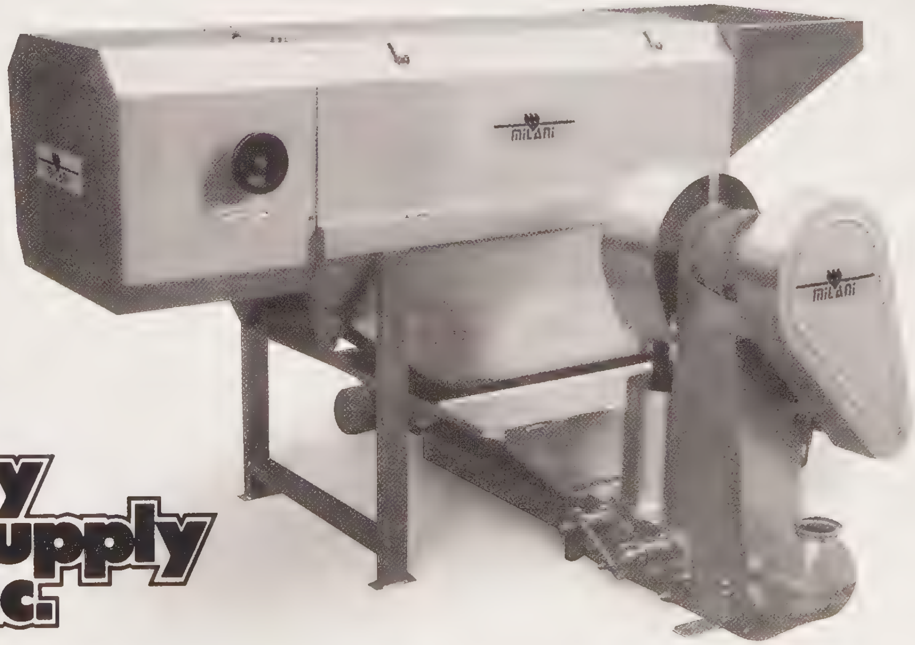

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pletes malolactic fermentation in order to reduce the acid level to around 6.0 g/L. Without MLF, the acid level would be too high and would require too high a residual sugar level to balance the wine.

"We intentionally strive for a lighter cranberry color in the Rosé," says Pavan. "It is not difficult to achieve with a pH typically around 3.3 in the finished wine, and we do not have to add too much SO_2 at this pH level. Our consumers find this lighter cranberry color more appealing than the orange/salmon color of some other Rosés. Our Rosé usually has a shelf life of about two years, but after one year in bottle, it begins to lose some of its fresh, fruity character.

Lone Ranger

Gary Eberle is alone in choosing Counoise for Eberle Rosé. In the 1970s, he made Zinfandel Rosé with 0.70 to 0.80 RS. In 1981, the winery made a Blanc of Syrah because he couldn't sell Syrah as a red wine. Eberle went on to Cabernet Sauvignon Rosé then back to Syrah. "After Syrahs were made famous by Randall Graham," he quips.

When a neighbor grower planted Mourvèdre, Grenache, and Counoise, Eberle committed to take all the grapes from the vineyard for the Eberle Cotes du Robles Rhône-style blend. When a Counoise surplus developed, Eberle created a Rosé. Counoise has a strawberry and melon character which makes it ideal for a Rosé-style wine.

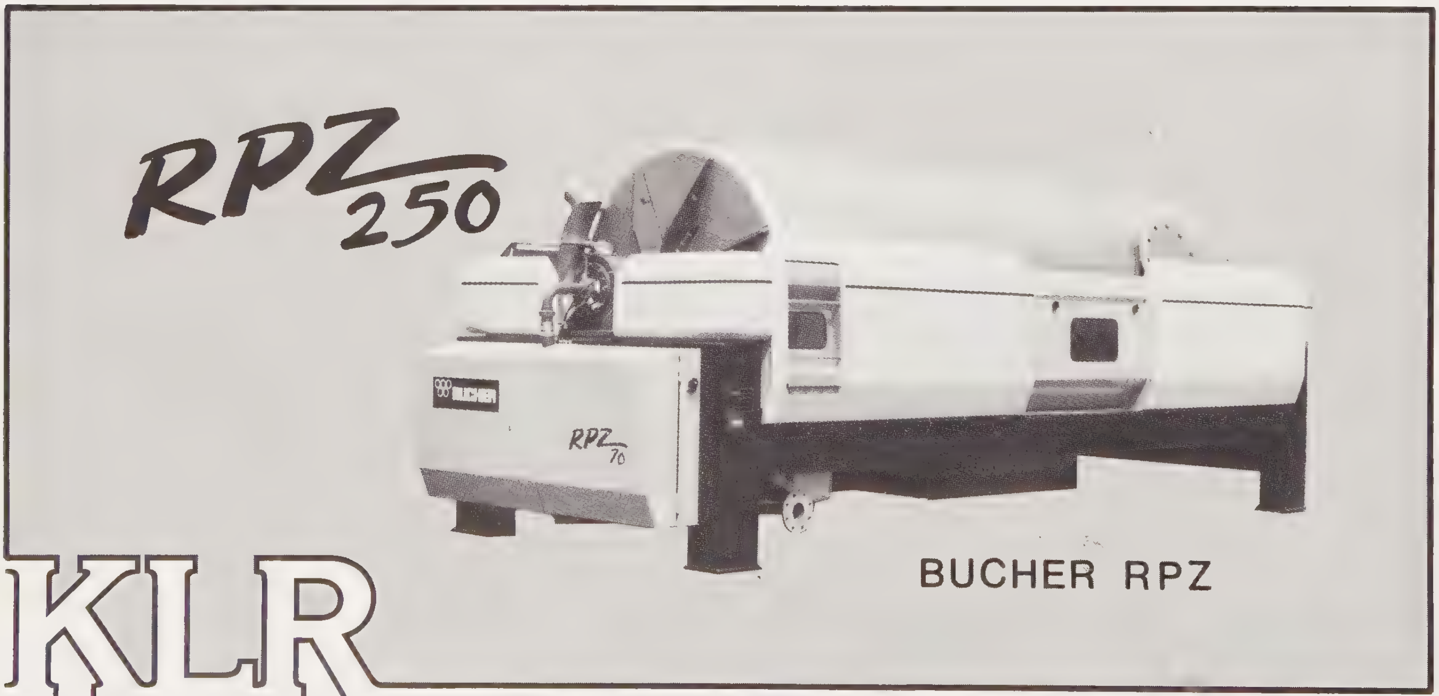
Eberle Counoise Rosé starts with 65% of the free run juice being drawn off after 48 hours skin contact. This is allowed to settle for an additional 24 hours before racking, and the juice is fermented at 55°F in a stainless steel tank. The wine is transferred to neutral barrels when it reaches 5° Brix and is left to age four months before bottling.

Other par saignée Rosés

At Iron Horse, winemaker David Munksgard makes Rosato de Sangiovese because it is the winery's goal to make a bigger, bolder Sangiovese. The Rosé is a *par saignée* wine. Depending on Sangiovese berry size, the amount drawn off each vintage differs, but on average, it's 10% to 15% of the free run.

Munksgard's method for making Sangiovese begins with a cold soak (seven to eight days) of crushed grapes. Dry ice pellets are dispersed throughout the must while it goes into red wine tanks. About 40ppm SO_2 is added. On approximately day-three, juice intended for Rosé is drawn off and allowed to settle two days prior to racking. Once yeast-inoculated, it is transferred to three- to four-year-old French cooperage and fermented to dryness in a cold room. The wine remains in barrel until January when it is prepared for bottling.

Preston's rosé is Rhône-inspired and made *par saignée*. It is made from estate-grown Cinsault, Grenache, and Mourvèdre. Grapes are picked fully ripe for Preston's red Rhône-style wine, "Faux," and juice is bled off (15% to 25%) 24 to 48 hours after crushing. The rosé wine, "Le Petit Faux," is consequently full-bodied and relatively high in alcohol (13.7% to 13.9%).



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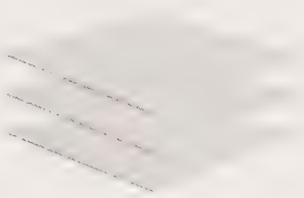

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"Cinsault is usually the biggest component and contributes ripe peach/cherry fruit and body to Preston's rosé," says Kevin Hamel, winemaker. "Grenache and Mourvèdre are roughly equal in proportion. Grenache provides floral and spicey notes and structure. Mourvèdre contributes aromas of sage and lavender as well as round texture. The wine is tank-fermented between 58°F to 65°F and bottled in early spring."

For Zinfandel Rosé, winemaker Caroline Scott of Twin Hills, uses a young, high-yielding vineyard section. In some years, grapes do not ripen above 22° Brix. Yields are around five tons/acre (TPA), which on the west side of Paso Robles, Scott says, is an unacceptably high yield for red wine. She draws off the Rosé portion after one day, but completes fermentation of this portion in tank. The wine never sees wood.

Strategies

Simi uses a mix of machine-harvested (about 75% in 1997) and hand-harvested grape sources coming from phylloxerated vineyards (about 10% in 1997) and non-phylloxerated vineyards. Yields range between 1.5 and 5.5 TPA. Grapes are picked between 20° and 22° Brix specifically for Rosé. Acids are generally higher (0.60 to 0.70 TA and 3.0 to 3.1 pH) to balance against a target sugar of 1.2%. As the target sugar is approached, tank temperature is dropped to 28°F. SO_2 is generally added within four to seven days. Aggressive tannins are minimal, due to short skin contact and short press cycles.

Issues of tannin management are addressed in crushing and pressing fruit. Simi crushes with rollers open and minimal skin contact, some skin maceration occurs to provide color, but with little astringency or bitterness. The press cycle is roughly three to four hours (press cut at about 170 gal/ton).

Doran insists that when Cabernet Sauvignon and Cabernet Franc are used for Rosé production, fruit needs to be fairly ripe to avoid sweaty smelling and herbaceous qualities.

Eberle suggests that Counoise also needs greater ripeness. He lets fruit hang until close to 25° Brix. The grapes tend to develop color more slowly compared to other Rhône varieties, so a longer hang time is necessary.

McDowell does not draw off from juice intended for a red wine. The Rosé comes from 55-year-old Grenache vines, picked at full maturity around 23.5° to 24.0° Brix and cold-soaked 12 to 36 hours.

Dan Gehrs describes Zaca Mesa's Z-Gris as a Chateauneuf-du-Pape "kitchen sink." It contains five varietals, but 75% to 80% Grenache. The blend also includes Counoise obtained from Tablas Creek, which Gehrs suggests is different from Eberle's because it does color reasonably well. Syrah, Cinsault, and Mourvèdre complete the blend.

All fruit is estate-grown and aimed for red wine. Z-Gris is therefore a by-product and driven by the red wine program. Counoise and Cinsault are young vines. "We're still getting a han-

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dle on growing and managing the crop on these vines," Gehrs explains. "They tend to be high producers. The clonal selection of standard Grenache is also very subject to shatter."

Due to this, crops vary from as little as 1.5 TPA to seven times that, and crop size largely determines the blend and production levels of the Rosé program. Economically disastrous low yields in 1995 throughout Santa Barbara County led vineyard managers not to green-harvest in 1996. But the 1996 growing season was hot, and when Grenache at 11 TPA ripened to 22° Brix, half the crop was harvested for Rosé made in a classical method with four days skin contact. The remainder hung to 25° Brix for red wine. "The resulting Z-Gris is a true child of the vintage," Gehrs remarks.

Cellar practices

With Bruno Clair, McDowell, Phelps, and Simi, where grapes are picked specifically for Rosé, the regime at the crusher differs from those producers who are drawing off juice from grapes destined for a red wine program.

Ostheimer explains that at Simi, SO_2 is not added at the crusher, except on machine-harvested fruit where 25 mg/L SO_2 is added to the juice in tank. Open rollers on the crusher yield about 50% whole berries. This and macerated fruit are transferred immediately to the press and dejuicing tanks. Color and phenolic profile are monitored to decide on the actual press cut.

At Domaine Bruno Clair, Pinot Noir for Marsannay Rosé comes from 25-year-old vines picked about 23° Brix. At the crusher, 30 to 40ppm SO_2 is added. To bring out the strawberry and cherry aromatics of Pinot Noir, 50% whole clusters are fermented along with the balance as whole berries.

A four-day color extraction period at 59°F is routine before pressing. The wine completes MLF, and therefore has lower acidity. But Clair believes MLF enhances the flavors of Pinot Noir in a Rosé.

At McDowell, 30ppm SO_2 is added at the crusher. About 3% to 15% whole Grenache clusters in juice are transferred to tank, kept at 40°F for 12 to 36 hours before going to press. Color is bumped up with addition of whole-cluster fermented Syrah.

Williams says that the grapes picked fairly ripe (about five days before picking Grenache for the red Rhône program) are subject to a light crushing without stems. About half remain as whole berries that are transferred to tank where SO_2 is added at 35ppm. Juice is held cold for 72 hours and drained for free run. The remainder goes to press where one press cut is made.

Because Grenache has a different phenolic chemistry and pigmentation from Cabernet Sauvignon or Zinfandel, it's very important to treat Grenache gently, Williams points out.

"Depending on where one wants to end up in the color spectrum, SO_2 addition is an important consideration," Doran adds. "SO_2 will definitely salmonize!"

"The higher the pH, the more orange

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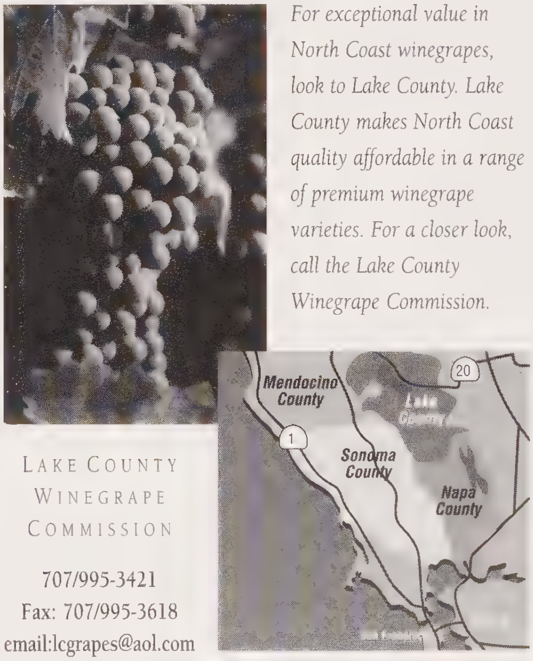

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coloration," Gehrs notes. "SO_2 considerations cannot be made without looking at pH. We add SO_2, not at the crusher, but in the tank (30ppm to 50ppm). I don't want juice to begin fermenting before I get the desired color."

Yeast choices for fermentation include Epernay, valued for its cold tolerance, slowness, and estery qualities, and Prise de Mousse for getting the job done. But Lalvin B71, VL1 recommended for light red wines, and BC1118 have also been used successfully.

Achieving target sugar

Among producers interviewed, bottling RS ranges from dry, or 0.10%, to 1.2%. For residuals higher than 0.50%, some winemakers stop fermentation while others adjust sweetness levels.

For Concannon's Righteously Rosé, Lane adds 2% Muscat Gewurztraminer when fermentation has been arrested sweet. In addition to raising the RS to between 0.70% and 1.0%, it adds floral notes.

At Simi, six or seven tanks of Rosé are fermented during harvest. Typically, fermentation drops 1° Brix per day until it gets to about 30g/L, then daily monitoring occurs. The ideal bottling target is 12 g/L. Some tanks are allowed to approach dryness, while others are stopped sweeter.

An Excel computer program calculates a weighted average of the sugar for all Rosé tanks. Decisions are made to freeze tanks to achieve the desired bottling sugar. The tanks remain cold for up to a week before SO_2 is added.

Battling a Catch-22

Because most producers put Rosé in a clear bottle, shelf life is reduced, but it is color that sells the wine.

"There's one solution," Lane suggests. "Don't make a lot and sell it all within a year through tasting room and direct mail sales."

For larger Rosé production, Ostheimer suggests more than one bottling blend each year to maintain stable color. ■

PWV thanks Simi Winery for hosting the Rosé varietal review discussion/tasting.

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sponsored by American Society for Enology & Viticulture
Sacramento Convention Center, Sacramento, CA

TOPICS:

International perspective on irrigation, Phil Freese (WineGrow, Healdsburg, CA) and Zelma Long (Chandon Estates, CA).

- **ABCs of vineyard irrigation: basic terminology**

Soil moisture and water: measurements and terminology, Terry Prichard (UC Cooperative Extension).

Plant water relations: measurements and terminology, Larry Williams (UC Davis).

- **Irrigation systems management options**

Hardware/software applications for vineyard managers, Don Gordon (Vestra Resources, Inc., Redding, CA).

Emerging technologies: GIS/GPS applications, Terry Prichard.

Irrigation in vineyard management: What are we trying to achieve? Zelma Long and Phil Freese (co-chair), Daniel Bosch/Rich Arnold (Robert Mondavi Winery), Doug Gore/Charles Hossum (Columbia Crest Winery, Washington), Russell Johnstone (Orlando Wyndham Winery, Australia), Mike McCarthy (Primary Industries, Australia).

- **Approaches to irrigation management: what happens?**

Australian experiences, Terry Lee, E&J Gallo Winery (chair), panel: Mike McCarthy, Russell Johnstone, Alex Sas (Australian Wine Research Institute).

Washington experiences, Bob Wample (chair), panel: Doug Gore, Charles Hossum, Sara Spayd (Washington State University).

California experiences, Larry Williams (chair), panel: Daniel Bosch, Terry Prichard, Ron Braese (Crop Care Services, Fresno, CA).

Open forum with Daniel Roberts (Kendall-Jackson Winery).

Poster session of contributed papers.

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MAY 14/16, 1998

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- Wine at America's first table, Julia Child, and David Berkeley (consultant to the White House Cellar).
- How the table illustrates a nation's culture, Niloufer Ichaporia King (food anthropologist).

Break-out sessions: Shaping behavior in the home and classroom; Wine and the Media: Who is leading whom?; Vineyard and winery growth in Monterey and Paso Robles; Medical professionals and wine; Marketing direct at the winery — Challenges and opportunities; Vineyard and winery growth in Santa Barbara and San Luis Obispo counties; Are men from Mars and women from Venus when it comes to wine?

Luncheon speaker: Margrit Biever (Robert Mondavi Winery), 1998 WWS Woman of the Year.

- Will America ever fulfill its destiny as a wine drinking nation? Jon Fredrikson.
- KISS or Wine education the consumer wants; Mary Ewing Mulligan, M.W.
- Understanding American demographics, Marion Minor, John Gillespie, Leda Sanford.

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When explaining the success the Held family has had with Stone Hill Winery in Hermann, Missouri, there are many angles that a reporter could take.

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Or, there's the angle of how this winemaking family is successfully transferring the reins of the business to the second generation. Oldest son, Jon, is general manager of production and the vineyards. Daughter Patty Held-Uthlaut handles special events and public relations, and youngest son, Thomas, is in charge of retail sales and advertising. (Another daughter, Julie, is an attorney in New York and not part of the winery operation.)

But the most exciting angle is the savvy marketing story of how the Held family hitched their winery's wagon to the Missouri tourism industry and it became the largest, most successful Missouri winery today.

Hermann is a picturesque little town of 2,800, founded in 1837 among the rolling hills along the Missouri River by German immigrants determined to establish a new Germany in the U.S. The tiny community has 100 buildings on the National Register of Historic Places, 35 bed-and-breakfast inns, many antique shops, and a robust year-round schedule of festivals that draw crowds from St. Louis, which is just 70 miles away. One of the most popular stops for these Hermann visitors is Stone Hill Winery.

As many as 5,000 tourists per weekend day, particularly in October, come to Stone Hill Winery to see the historic red brick and natural limestone winery built in 1847. It boasts North America's largest underground, stone and brick-arched cellars. With 25- to 30-foot ceilings, the cellars hold 6,000-gallon stainless steel tanks at a constant temperature of 58° to 60°F.

Visitors tour the winery, sample some of Stone Hill's 17 wines, shop in the newly expanded sales room, picnic on the grounds — seven acres of tree-shaded grass — and linger over lunch or dinner at the winery's 150-seat restaurant, Vintage. Amenities also include a pavilion that seats 600, a bandstand, a deck, and kitchen facilities for weddings and other special events. Most visitors go home with at least a bottle or two, if not a case, of their favorite Stone Hill wines.

The Hermann facility might have been enough for some vintners, but the Helds added a second winery in 1982 in New Florence, along Interstate 70. Missouri law doesn't allow stand-alone tasting rooms; they must be attached to wineries, so New Florence is Stone Hill's champagne cellar. This facility is primarily for the convenience of long-time customers traveling between Kansas City and St. Louis who want to buy wine, but don't have time to drive all the way to the winery. Together, New Florence and Hermann draw about 200,000 visitors annually.

A main feature of Stonehill Winery's new 2,500-square-foot retail space is a wine display bin that allows customers to make their own wine selections to fill cases and four-packs.

Noting the heavy tourist traffic in Branson, MO, the Helds opened a third winery there in 1986. At the winery in Branson, Stone Hill makes carbonated Spumonte and sherry.

Of the six million tourists each year flocking to Branson to see the likes of Andy Williams, Tony Orlando, Mel Tillis, and Charley Pride, about 500,000 visit Stone Hill's tasting and sales facility there. Six tasting rooms occupy 3,500 square feet and accommodate as many as eight simultaneous tours. There is also a 7,500-square-foot sales room.

Stone Hill Winery sells two-thirds of the more than 71,000 cases of wine and grape juice it produces each year through these three tasting room/retail sales locations. The family is planning to expand production to 125,000 cases over the next 10 years. The winery has already doubled production over the last seven years and hopes by expanding further to increase wholesale distribution beyond Kansas and Illinois, currently the only places Stone Hill is sold outside Missouri.

"Because of our own in-house retail demand," says Thomas Held, Stone Hill director of sales and advertising, "we have put our wholesale distributors on quotas, and we have raised prices to try to slow down our wholesale market. This is not only tricky but risky, because of the importance of the wholesale market.

"We know we can sell more wine. But as long as we can sell every bit we make at our retail locations, we'll sell it at home."

How fast they can increase production depends upon grape availability. "Every grape in the state is utilized right now, and to increase production, we will have to grow the grapes ourselves." Currently, Stone Hill has about 80 producing acres with several acres coming into production over the next few years.

"We have another 200 to 300 acres that we could possibly plant if the soils turn out to be right, but there are only so many long-term improvements you can make at one time." For the past several years, the family's focus has been on improving the winery's sales facilities.

New Hermann retail space

In 1992, the Helds tripled the size of the retail and tasting rooms in Branson. Since then, Held says, sales there have doubled. They have just completed expanding the retail and tasting rooms at Hermann. The new space opened in September 1997, and so far, he estimates, sales are up about 15%.

The original Hermann tasting room was about 1,000 sq ft. At times it would be so crowded that customers would turn around and walk away, rather than try to squeeze inside. "Customers who don't have space aren't happy," says Held, "they don't want to feel corralled."

The renovation takes up the entire 4,500-sq-ft main floor of the original winery building and includes a 2,500 sq ft sales room and three tasting rooms. "We worked with the Missouri Historical Preservation Society to do the restoration." Stone Hill Winery earned tax credits by keeping the restoration true to the original structure.

The $1-million renovation included bringing the structure up to earthquake standards, using massive 12-inch by 14-inch white oak beams produced by an Amish sawmill in Ohio. The winery walls are 12-inches thick and built of solid brick. The restoration includes a conservatory called the Wintergarden, with plants and a fountain complete with goldfish. On the south side of the winery, this space invites customers to picnic indoors when the weather is cold.

Two of the three new Hermann tasting rooms accommodate tour groups of visitors who are new to the winery. The third is a VIP tasting room in which long-time customers sample recent vintages of their choice and stock their wine cellars.

The entire space is designed so that customers have to go through the sales room to exit the building, Held explains.

Making customers happy

Held says that about 25% of the gross sales in the three retail locations are non-wine items, including food. The family's goal is to offer something for every customer.

Nearly every non-wine item available in the retail stores is wine-related: corkscrews, stoppers, wine bags, t-shirts, hats, bags, glassware, and local food items. "We sell a lot of gift baskets," Held adds. "Our clientele from St. Louis is very upscale, and they come for gift baskets that we assemble while they wait."

He finds that, in general, high-end merchandise doesn't sell well, particularly in Branson, where visitors usually come in on impulse and aren't planning to buy. "In Hermann, customers will buy $80 decanter sets and crystal glassware at $6 or $7 per glass." But for the most part, non-wine sales are in the $3 to $15 range.

"The average sale in Hermann is higher than in Branson, because customers specifically come to Hermann to buy wine. Forty percent of the Hermann and New Florence wine customers buy cases, compared to only 10% in Branson." Held finds that Stone Hill Winery is several merchandise vendors' largest customer. "For example, we sell more than 50,000 Epic corkscrews every year."

When Held examines Stone Hill Winery's success, he points to many factors that basically boil-down to paying close attention to keeping customers happy. "Several times a year, I sit outside the sales-room door and watch our customers to see what they buy. I look at the customer and think: 'What did we miss? What did we not have to offer that person? Was he hungry and we didn't offer the right food?'"

Held cites several examples of how this analysis has paid off. "We noticed that a lot of people were bringing coolers with their own snack foods for their picnics, so we started offering a larger variety of picnic food.

"We also discovered that people weren't buying corkscrews, accessories, stoppers, and that sort of thing at the typical industry mark-up. Because of our volume, we were able to bring these items in at a lower price. People wouldn't buy at $5.99, but when we decreased the price to $4.99, we doubled sales, so that was a good move."

At Stone Hill Winery, letting the customer handle the merchandise is an important part of the sales philosophy. "Beginning wine consumers act like they know a lot, but they don't. They want to touch the bottles and read the labels themselves. They want to go to the racks and decide for themselves. In California, the stock of wine bottles for sale is often kept behind the tasting bar. We strongly disagree with that approach."

In the Hermann sales room, a large double-sided display rack has roomy cubbyholes, arranged in the same order as the tasting list. Each cubbyhole holds 18 bottles of wine. Empty cases and four-packs are stacked nearby. Customers can go down the row and fill their own carton, or get a salesperson or their tour guide to help.

"The most important thing is to respect the customers' desire to look on their own, but you don't want them to go away feeling that nobody offered to help. You have to balance the two."

At Hermann, a tour group is served by a single guide, who becomes their tasting-room host and then helps with their selections in the sales room. "The guide knows the customer and has attained a comfort level and an understanding of what they like." Held believes that having this follow-through helps Stone Hill Winery make sales.

The goal of having something that every customer wants to buy keeps the Stone Hill Winery crew busy. They produce 17 wines, including sparkling wine, late harvest Vignoles, sherry, and port. Half of these wines are French hybrids; the other half are native American grapes, *Vitis labrusca*.

"We cover every category, so we can make every customer happy," Held explains. "People who come here are of all makes, from retired farmers to metropolitan business people. The Midwestern old-timers like the sweet wines, and many beginning wine drinkers like them, too.

"We also have many families who don't drink wine, but they're interested in how the winery works. For them we have three different kinds of grape juice. These include Concord grape juice with 16% residual sugar; sparkling clear; and sparkling grape/raspberry. We sell almost 11,000 cases of grape juice per year, bottled in wine bottles."

Repeat business is very important to Stone Hill, so the winery offers significant benefits to good customers. "Customers get a 10% discount when they buy a case of wine and a 15% discount when they buy two cases. Then we make them a VIP customer and send them our newsletter. As a VIP customer, when they come back, they get an additional 5% discount on top of the case discount." There are 32,000 people on the Stone Hill Winery VIP mailing list.

Free tasting for over 700,000

Free wine tasting of 17 wines for 700,000 visitors means Stone Hill Winery pours a lot of free wine. Held says the tasting list actually only includes eight to 12 of the wines, and pours are much smaller than those usually seen in California. "Dribble, dribble," he describes them. "If you put them all in one glass, it would

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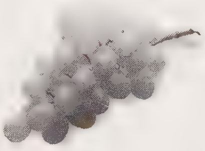

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probably only be about five ounces per customer." Still Stone Hill annually pours about 2,500 cases of wine in its tasting rooms.

Bringing in the customers

During the regular season (April through November), the Hermann tasting rooms and sales room are staffed by a crew of 10. Branson has a staff of 20 year-round, and New Florence is staffed by three. The Helds control the flow of business, to some degree, through advertising with billboards and brochures at tourist information centers.

Stone Hill's group salesperson books tour groups to the wineries, bringing about 150 tour groups annually to Hermann and more than 2,000 to the Branson facility. Such groups may be spouses of folks attending conventions in St. Louis, for example, or tour groups passing through the state.

Weddings are also becoming a bigger part of the Hermann business, although they have to be booked between festivals and other winery activities. Held says 18 weddings have been scheduled so far, between May and September 1998.

The busy festival schedule (often planned in conjunction with the city of Hermann) includes the spring Wurstfest or sausage festival, Maifest in May, Cajun Festival in July, Grape Stomp in August, and October Weekends.

But Held says the most important factor in bringing visitors to Stone Hill Winery is bringing each visitor back again and again. He identifies two crucial elements in making this happen.

The first is customer service: "Each customer has to be taken care of and treated appropriately. Every customer has to be happy."

The second element is creating an experience for visitors: "It's more than just coming to a winery, tasting, and leaving. The Stone Hill experience creates a 'Wow! This is great! I want to come back.'" And they do. ■

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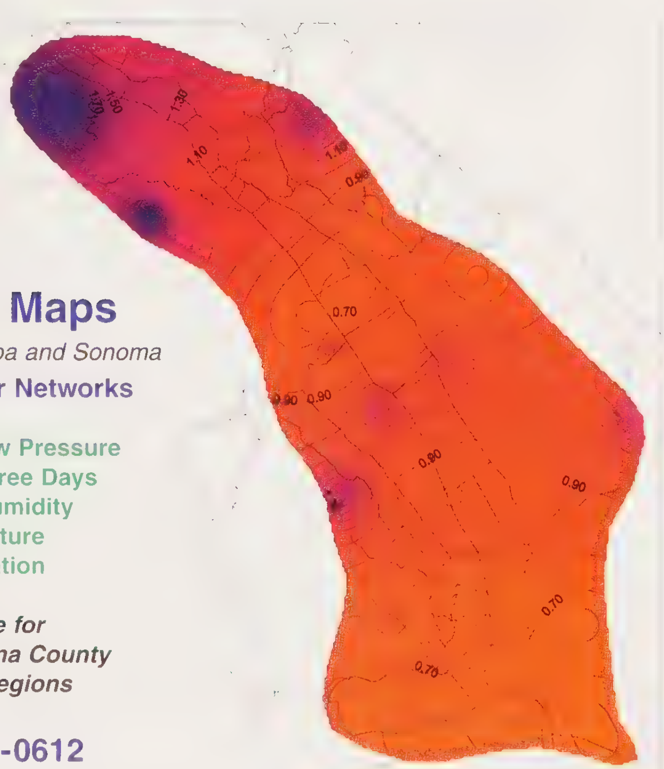

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INSIGHTS FROM

Claudia diClemente

KENWOOD Vineyards

by Craig Root

Claudia diClemente has been with Kenwood Vineyards (Sonoma, CA) for 13 years. She has cultivated a very direct and forthright rapport with her staff and knows how to create a fun, educational atmosphere. Kenwood sells almost 300,000 cases annually, and the tasting room occupies 1,000 square feet.

In addition, Claudia is very active with Women for WineSense, a proactive wine advocacy organization with over 800 members, both women and men. As national president in 1998, she is planning for the annual conference May 14-16 this year near San Luis Obispo, CA.

***Craig Root:** Tell us how you became director of hospitality for Kenwood Vineyards.*

Claudia di Clemente: I was born in Sonoma to Italian immigrant parents, so wine was always a part of my childhood. My family used to help my grandfather stomp grapes and make wine at home every year.

After I grew up, I joined Sonoma Mission Inn as a front desk manager during its transition to a luxury hotel. While exposed to that food and wine experience, I realized Sonoma was making some great wines, and this would be a fun industry to work in.

In 1984, after two years at Sonoma Mission Inn, I started working as a part-time tour guide at Kenwood Vineyards while I studied for a teaching credential. Just as I received my credential, the manager became terminally ill. He hand-picked me as his successor, because he felt I had the right qualities.

CR: That must have been quite a feat — to take over without any experience.

CdC: Yes, it was daunting at first.

CR: How much have you increased sales there?

CdC: I just completed a report on that subject: Sales are up 300% in 10 years.

CR: Part of the way you've achieved that result must be through your mail order club and your home tasting club.

CdC: In the beginning — because I was new — I researched what other people were doing. A friend at another winery had created a system where customers purchasing over $100 were invited to be on a mailing list. They received four wine offerings per year. I borrowed that idea to create our wine club. It's important to have the $100 qualifying figure. One year we dropped that and signed up anyone who made a purchase. We got a lot more names, but our sales per letter mailed decreased enough that we went back to the original $100-qualifying system.

CR: That's a great tip. So those folks receive an offering several times a year. What about your automatic shipment club, the Home Tasting Club?

CdC: The automatic Home Tasting Club was an idea that Marilyn Dunlavey, my club manager, and I bounced around for a while. By the way, that's one way I've increased sales — by hiring good people. Marilyn is very organized and detail-oriented, and those qualities are extremely important in a club manager. After a couple of false starts, we got the Home Tasting Club going in 1996. That club now has around 800 members.

CR: What is the mail order club membership?

CdC: The mail order club is around 3,000 which seems to remain relatively constant. If members haven't bought anything after 18 months in this club, we mail a letter asking if they want to stay with the club. We delete them if there's no response.

We've also been increasing our corporate Christmas gift sales by approaching members of both clubs. Marilyn kept all the logo letterhead and business cards collected from those members. She sent them a personalized solicitation for corporate Christmas gifts in 1997 and increased sales from $80,000 in 1996 to $180,000 in 1997. Corporate Christmas gifts are holiday bottles etched and hand painted with a company's logo, in two-bottle gift packs.

CR: What are the attributes of a good tasting room manager?

CdC: Communication is very important.

CR: How do you achieve that?

CdC: We have a 30-minute weekly meeting with managers and supervisors, which keeps most staff problems from becoming overblown. Plus we have a monthly meeting with the entire staff of 36 people (six full-time, 15 part-time, and 15 on-call) are paid to attend.

CR: What are the attributes of a good tour guide?

CdC: Animation, to be larger than life, to achieve eye contact, and to make the customer feel special. A good line of bull

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Part III in a series of articles examining helpful tools for successful winery tasting room staff based on interviews with industry leaders who share their insights with ***PWV*** *readers.*

doesn't hurt. (laughter) Wine knowledge is important, and also the ability to deflect the conversation from focusing on yourself and focus it on the customer(s).

CR: *Can you tell us more about your monthly staff meeting?*

CdC: The staff meeting is on the fourth Wednesday of every month, from 5:15PM to 7:15PM, after the tasting room is closed. I really like to stress an educational approach to these meetings. A lot of the success I've achieved as a manager derives from my training as a teacher; the skills for managing a classroom are applicable for managing a tasting room.

What I noticed as a part-time tour guide was that I felt like Orphan Annie and the tasting room personnel felt left out. I want people to feel better about their jobs. We have guest speakers, such as one of the winemaking staff, or we hand out and discuss health and scientific literature from the Wine Institute. With this knowledge, tour guides feel better about their jobs. It really shows in their attitude behind the bar.

CR: *The mere fact that you have such a meeting shows the employees that you respect them.*

CdC: Right, that's why I pay them to attend and have food and wine for them. Also, I always make sure there's an agenda for them to follow. If anyone had a birthday that month, I give him or her a bottle of wine.

CR: *I know you're a big advocate of responsible hospitality. Would you discuss that?*

CdC: When I started, things were pretty loose in terms of staff drinking on the job. I didn't want my staff to get DUIs. I approached the Responsible Hospitality Project, and they were delighted to help. By training my own staff, responsible hospitality became an important issue on both sides of the counter.

It's in the Kenwood training manual, and we stress it verbally, so responsible hospitality has become part of the fabric of the environment here. Also, we had some people who couldn't adhere to the one-ounce pour — so we have a one-ounce line etched on the glass now.

CR: *Can you offer any tips about point-of-sale (P.O.S.) computer systems?*

CdC: In July 1997, Kenwood connected the tasting room to a new computer system used by the entire winery. There's a universal complaint regarding a P.O.S. computer system: You never get the service that was promised when you purchased the system. So, it's important to get that nailed down ahead of time. I feel that P.O.S. computer systems can be awkward (some require too many key strokes for simple functions, for example). However, the information they provide is priceless.

CR: *What's your philosophy on non-wine item selection?*

CdC: We do about 18% of sales in non-wine merchandise. But as Sonoma County is getting more restrictive, we're being more careful about what we carry. Non-wine items must be wine accessories, such as cork pullers and logo glasses. All food items and logo clothing are proprietary with the Kenwood logo. I can tell you that food items have come on really strong in the past year.

A Man Standing, His Arms Crossed by Honoré Daumier, ca. 1850

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CR: *Speaking of food, what about your program of providing small complimentary portions of food items for tasting with wine on the weekends from noon to 4PM?*

CdC: I'm proud of that because it's something I created. I'm surprised more wineries don't have such programs. We started it as a way to sell a slow-moving dessert wine, and it worked so well that we expanded it to include other wines. During the summer, we offer sorbets. We have a strawberry sorbet that pairs well with our Chardonnay and a vegetable paté that complements our Cabernet Sauvignon. This program boosts sales and increases customer satisfaction.

CR: *Years ago, I attended your seminar in which you recommended that pourers ask open-ended questions? Is that still a focus?*

CdC: That's an exceptional sales technique. It draws customers out and helps make it easier to guide their selections. You want pourers to ask who, what, where, when, why, and how questions instead of questions that call for a "yes/no" response.

CR: *What about distribution of coupons to Kenwood winery tour participants?*

CdC: We offer impromptu tours three times daily and give a coupon, good that day only, to people who take a tour. The coupon gives them a 20% discount incentive to buy our wine and gives us an opportunity to show off our winery. Equally as important, it helps sales!

CR: *Could you discuss the Women for WineSense seminar coming this May?*

CdC: Eileen Fredrikson, of Gomberg, Fredrikson & Associates in San Francisco, is the chairwoman. With her involvement, this has become a really powerful conference. It's May 14-16 at the Cliff Hotel in Shell Beach, near San Luis Obispo. The theme is: "America's Table," so we'll cover everything from White House wine service to third and fourth generation wine families and antique glassware and table service. We'll even have a food anthropologist there. Plus, we have a great lineup of guest speakers.

CR: *I always like to close my interview with a humorous anecdote. Do you have a story to share after 14 years in the business?*

CdC: When I was a new manager, I thought it would be fun to color one of the white wines green on St. Patrick's Day. I chose the Gewurztraminer, because it came in a brown hock bottle, so you couldn't see the contents. I expected laughter or shock or some great reaction from the tasting room customers. Around noon, the first visitors to request the Gewurztraminer arrived, and I poured the green liquid into their glasses. Instead of laughter or shock, I got absolutely no reaction at all from them. I mean nothing! I couldn't believe it, until I found out these visitors had never been wine tasting before and had never tasted a Gewurztraminer at all. That ended my prankster days. ■

Watch for future articles in this series. If you have comments or suggestions, call Craig Root at 707/963-7589.

Craig Root is a 26-year veteran of the wine and hospitality business, including 15 years at Beaulieu Vineyard. He has worked in all capacities at hospitality centers, primarily as manager. For the past four years, he has served as a consultant for visitor centers through his own company, Craig Root & Associates.

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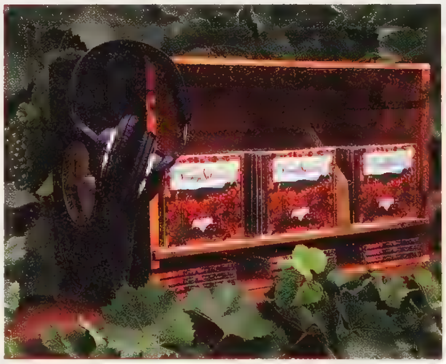

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PLEASE SEE WINE APPRECIATION GUILD AD. PAGE 15.

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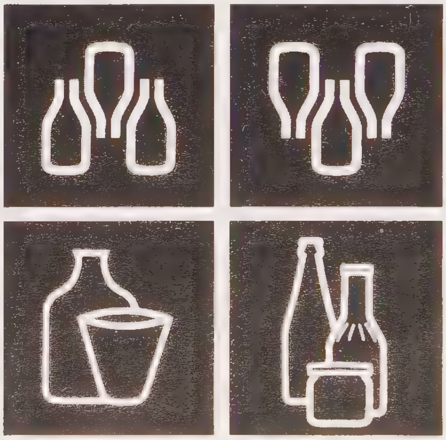

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by Dr. Richard Smart

Vineyard irrigation breakthrough?

PARTIAL ROOT-ZONE DRYING

Experienced vignerons know that irrigation control is a key factor to growing quality winegrapes, especially for red wine. There is nothing quite like a little bit of water stress to hasten early ripening and provide better quality wine.

But this is not always so easy to achieve. Too much water stress and photosynthesis slows or stops, and leaves may even fall from the vine. While some reduction in berry size is universally considered desirable, how can one achieve this without a substantial yield loss? Also, while vigor control by water stress is widely acknowledged, it is often only achieved at the expense of significant yield loss.

I have observed many vineyards around the world with a reputation for ultra premium red wine quality. One feature they seem to have in common is that shoots initially grow well, then stop at about three foot in length, with about 15 to 20 nodes. It seems that water stress has stopped the activity of the growing tip somewhere between fruit set and veraison. Yet the vines do not seem to show severe water stress later in the season.

What causes these effects? I think the answer to this question may be found in exciting new research work in Australia, which is now already in the early stages of commercial evaluation. The technique is called "Partial Root Zone Drying" (PRD).

Background research

Researchers have known for some time that when part of a plant's root system starts to dry, a "signal" is sent to the top of the plant that drought may be approaching and vegetative growth stops.

Some of the early work in this aspect of vine physiology was done by the Australian scientist Dr. Brian Loveys and German scientist Dr. Helmut During who discovered they could control leaf growth by drying part of the root system. Further studies by During found evidence of a plant hormone which moved from the drying roots to the shoot. The likely candidate was abscisic acid, commonly called ABA. Scientists were aware that the hormone ABA caused stomates on the vine leaf to close, inhibiting water loss by transpiration.

In 1991, Loveys and viticultural scientist Dr. Peter Dry began to investigate this further and determine any possible commercial applications. They wondered if partial root zone drying might provide a technique to reduce vigor without the normal corresponding loss in yield. Vigor control is desirable from many points of view, with the prospects of better vine balance and yield, reduced disease pressure, and improved wine quality.

Let the experiments begin

The two scientists employed some clever experimental techniques which eventually led directly to the commercial technique. Faced with the question of how to dry only part of the root system, they cut cuttings longitudinally at the base. Each half developed a separate root system which could be put into different pots. The two pots could then be watered separately, using the so-called "split root" technique.

In many experiments on the resulting vines with split root systems, vines with both halves watered well were compared to those where one half was watered well but the other half was allowed to dry. The results were magical. As one half dried out, shoot growth slowed down and the stomata began to close. However, and surprisingly, this effect was transient. Though the stress continued in part of the root system, the shoot growth rate recovered. It seemed as if this temporary reduction in shoot growth might be the plant's first line of defense against water stress, but other strategies would be invoked if the stress persisted.

Pot trials soon gave way to field experiments. Test vines were Cabernet Sauvignon grafted to Ramsey rootstock planted in 1991. The first year of fruiting was 1993. The climate in the Adelaide region is Mediterranean, with warm to hot, dry summers. Initially, field vines were developed with their root systems separated in two by a vertical sheet of plastic. Each side of the vine was irrigated by a separate dripper system, so water could be applied independently to each half.

To maintain the maximum effectiveness and avoid the transient effects, the two root systems were alternated as "drying" or "wet." They were compared to vines with both sides kept wet over the period from fruit-set until harvest. There were about six root-zone drying cycles in this period, each of about two weeks duration. Over the growing season, the vines treated with PRD received about 40% less water than fully watered vines.

The field trial results were as exciting as those from the pot trials. Pruning weights were decreased by 30% due to shorter shoots, but with no loss in yield. Internode length was not affected, but internode number was. In other words, the shoots stopped growing sooner. Vine leaf area was reduced, especially for lateral leaf area, by 40%. The trial demonstrated that vine vigor could be controlled in the field, as in the pot trial.

Because of less shoot growth, the canopy was more open and bunch exposure was improved by 170%! The PRD vines were more efficient at water use, with a 46% increase in yield per unit water applied.

The PRD vines were harvested one week earlier than the irrigated control, with the same sugar concentration. For all parameters tested, fruit quality was improved. Color was greater by 45%, as were phenols and glycosyl-glucose. Acidity was increased, and pH lowered. Berry weight was the same for both treatments, which makes one wonder if the beneficial effects of small berries might not be overemphasized in many discussions.

Two irrigation valves serve one vine row

Commercial implications

It could be that a form of PRD occurs in some vineyards naturally. Imagine a vine with a deep root system, say six feet or more. As the top soil dries out during the summer, it is only the roots at depth in wet soil which supply water. Such effects have been noted in studies of the classic vineyards of Bordeaux, and French researchers have suggested this is a key factor in "terroir" effects which are known to contribute to quality.

Similar effects have been observed in some deep North Coast California soils. (See "Water management in California's North Coast," ***PWV***, March/April 1995, pp. 39-48.) However, these effects of soils drying down a vertical profile probably do not result in to the same degree of water status control as with the development of two discrete root systems in a horizontal plane described here.

Is PRD the same as withholding irrigation? The researchers Loveys and Dry think not. Halving the amount of water applied will not likely produce the same result as with PRD, they say, although PRD-vines do behave in some ways as if they were water-stressed. For example, PRD vines show no measurable response in plant water stress, determined by leaf water potential. This invariably will happen with a significant irrigation reduction.

In addition, berry weight is not affected by PRD, and this yield component is often the most sensitive to late season water stress. Also, with conventional water stress, internode ***length*** is affected, whereas with PRD, it is internode ***number*** which is reduced. Further, with PRD, there is only a small alteration in stomatal resistance to water vapor flow, whereas for vines suffering severe water stress, the stomata may completely close. These arguments seem convincing.

Currently, there are commercial PRD-trials under way in Australia. How does one set up an irrigation system for PRD? It is quite easy, as one can effectively install two drip irrigation lines per row of vines, each with a separate control. If the drippers on the two lines are separated, then it is easy enough to establish a "wet" root zone distinct from a "dry" one for each vine. The two dripper systems can be separated down the row with one side of the vine being watered, the other not.

Buried drip systems can be also installed on either side of the row, and again there can be distinctly separate "wet" and "dry" zones. For both systems, the capital costs will be increased and almost doubled, since both lateral lines and sub-mains need to be duplicated.

Conclusion

Time will tell if this development is as important as I judge it to be. My assessment is that these researchers have discovered a key element of the "terroir" effect, and that this work offers an important new approach to the study of soil/water effects on wine quality. It also appears to offer vignerons the opportunity to control vigor and improve wine quality without reducing yield. The method promises substantial water savings which can be economically very worthwhile.

To practice PRD requires a more elaborate and expensive irrigation system, and also requires careful soil moisture measurement and control. On balance, I think the system appears to be one of the most exciting developments of recent decades, and it will offer the committed vigneron yet another management tool in the pursuit of wine quality. ■

Dr. Richard Smart, "the flying vine-doctor" is an international viticultural consultant. You can reach him in Australia by fax at 011-61-2-6584-0121, or by e-mail: vinedoctor@smartvit.com.au. Visit his home page at www.smartvit.com.au. He visits America frequently and can be contacted at Vinquiry in Windsor, CA, tel: 707/838-3115.

CORRECTION

Apologies from the publisher and the author to Bruce Reisch of Geneva, NY, who was misidentified as Bill Reisch in the Jan.-Feb.'98, *Smart Viticulture* column, pg. 111.

LETTERS

DEAR EDITOR:

I find a number of points of disagreement with Dr. Richard Smart's column on Chardonel (Jan/Feb-1998). Suggesting Chardonel as a replacement for Chardonnay is nonsensical except in locations where Chardonnay cannot be profitably grown. It is a substitute for Seyval, not Chardonnay. As far as the name goes, why not just really confuse the consumer and name it Chardonney.

My intention is not to denigrate Chardonel as a cultivar. In fact, I believe it to be an outstanding hybrid white cultivar when grown on appropriate sites. Many growers throughout the mid-Atlantic region have not been very successful growing it due to various problems. The worst of which appears to be it's susceptibility to grape root borer.

It is reasonably likely that widespread planting of fungus-tolerant cultivars grown with little or no fungicide treatment will just select for resistance-breaking organisms, so to try to substitute inherent plant resistance for fungicides may not work in the long run. Fungicides are becoming more and more environmentally benign as research on new products continues.

Last but not least, what will the grower in vinifera-growing regions that planted Chardonel do when genetically-manipulated Chardonnay (resistance-breaking organisms could destroy the value of these also) with disease-resistance is available? I feel that genetically-altered cultivars will be patented and marketed under their current cultivar name because it is in the interest of all researchers and businesses involved to do so, and there is precedent (at least in the U.S.). We already market genetically-altered clones under the same name, they just haven't been altered in man's laboratory, only nature's. We have botrytis-resistant selections of many cultivars available, for instance, but it was due to natural selection.

Dr. Smart also suggests that many winegrowing regions grow up when they move to vinifera plantings. Is he then suggesting a step backward? He also suggests that more American species breeding is going on in other countries which is most likely completely false. The disbanded programs he mentioned were not doing enough to matter. The resurrected program in Minnesota has released Frontenac and more will hopefully be coming along. The program at Geneva, NY, is strong.

There is also a small but intense group of private breeders working to make grapes suited for every locale and climate in the U.S. Make no mistake, in the future more and more regions will be planting the successes of private breeders.

Ike Kerschner,
Mica Ridge Vineyard, Coatesville, PA

Letters continue on page 62

DR. SMART RESPONDS:

I am grateful to Ike Kerschner for his thoughtful letter. He raises interesting points, which I will reply to in turn.

I cannot agree with his assertion that I suggested Chardonel as a replacement for Chardonnay. What I did suggest was that Chardonel might be evaluated on the West Coast for pest and disease tolerance (mildew, Botrytis, phylloxera) and for winter cold tolerance. We may find that, like its noble parent Chardonnay, Chardonel performs well from a yield and quality viewpoint across a range of climates, cool to warm and even hot.

I am not sure that widespread planting of disease-tolerant varieties will lead to selection of resistance-breaking organisms, as happens with fungicides. If that were the case, there might be super-virulent strains of some diseases lurking in the eastern U.S., where so many native vines are present.

Mr. Kirschner's comments about naming of genetically-manipulated plants as clones rather than new varieties is of interest. Perhaps some of the scientists working in this area could comment on this most important issue.

As I understand it, naming is an important part of patent protection so that scientists can collect their royalties on propagation.

I am interested that Mr. Kershner refutes my allegation that it is likely more vine breeding is taking place outside than within the U.S., and wonder what is his proof. American species with their pest and disease tolerance have been widely used, but modern hybrids are very complex in their geneology, and currently selection is for wine quality along with acceptable levels of disease resistance.

I am familar with the work of some private breeders and, like Mr. Kerschner, am optimistic that they will produce useful new varieties.

Dr. Richard Smart

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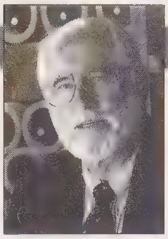
by D.R. Storm, PhD. P.E.



STATE GOVERNMENT STUDYING GREATER ROLE IN MANAGEMENT OF INDUSTRIAL SLUDGES

Historically, federal law has governed the disposition of waste industrial sludges ("sludge" is loosely defined as a liquid or semi-liquid mixture of waste materials that are the by-product of industrial processing with little or no salvage or recycling value). The U.S. Resource Conservation & Recovery Act (RCRA) of 1976 stipulates the handling and disposal of waste sludges.[1]

The California Integrated Waste Management Board (CIWMB) issued a memorandum in December 1997, which suggests that, during a series of public hearings to be held in 1998, the CIWMB might frame regulations that could address the disposition of industrial sludges from a purely California perspective.[2]

How these regulations might affect the wine industry [Standard Industrial Classification (SIC) #2084], or even if they would address wineries at all is not clear. Current California wine industry practice is for composting pomace at a permitted facility or incorporating stems and lees and possibly pomace into vineyard soils, where feasible.

It does not appear that another level of government intervention would benefit what is already an economically and environmentally sound method of winery solids disposal. This large volume of agricultural waste also represents materials that can be diverted from the state's sanitary landfills if the current practice of in-vineyard soil incorporation and/or composting is continued. Current statutes require all counties in the state to reduce the volume of waste to landfills by 50% by year 2000.

Wineries wishing to express their opinions on proposed winery processing residual solids regulations should respond by letter or e-mail to:

Michael B. Wochnick
Remediation, Closure and Technical Services Branch.
Permitting & Enforcement Division CIWMB
8800 Cal Center Drive
Sacramento, CA 95826
e-mail: mwochnic@ciwmb.ca.gov

Glycol chillers, cooling towers, and brine discharges

Nature of the Problem

A previous *PWV Winery Water & Waste* column (Jan/Feb 1995) discussed brine discharges from ion-exchange water softeners and their possible effects on septic tank performance. Saline water is also discharged by winery glycol chiller systems. In these systems, the refrigerant condensation method of choice is a heat exchanger (evaporative condensers, cooling towers) that uses evaporative cooling of water to condense the refrigerant gas.

Evaporative condensers are often the system selected, because capital and operating costs are lower than air-cooled condensers.[3] Also the moderate humidity that prevails most of the year in California's Mediterranean climate makes the evaporative coolers thermodynamically efficient.

In my experience, glycol chiller systems in the 40-ton range installed in a number of California wineries that have evaporative water cooling subsystems for refrigerant condensation, generally have saline discharges in the order of four to six gallons per minute with salinities in the high range from 600 to 1,100 mg/L, Total Dissolved Solids (TDS). Thus, on a 24-hour basis, the volume of salt-laden water from a 40-ton capacity chiller system could be significant at 7,200 gallons per day.

Because excessive salinity can impair the beneficial uses of both ground and surface waters (domestic/culinary, industrial/commercial, and agricultural) responsible public agencies are mindful of the disposition of these potentially significant salt loadings.

Waste discharge implications

Nearly all states have developed model wastewater management plans to identify beneficial uses of groundwater and surface waters and to establish chemical and bacteriological standards and limits to be maintained. In California, the wastewater management programs are called "Basin Plans" because of the convenient subdivision of the gross state land areas into hydrologic units whose limits follow watershed and groundwater basin boundaries.

For example, the Upper Salinas River Basin prohibits any wastewater discharge with a salinity which would produce an increase in the groundwater baseline concentration of 400 mg/L (ppm) TDS.[4] TDS, by laboratory definition, is the equivalent of the weight of all non-filterable residue that would result if a one liter-sample of water was totally evaporated. By comparison, a one-liter sample of ocean water would contain about 35,000 mg/L (ppm) of inorganic salts.[5]

While total salt content is a relative measure of water use suitability, specific chemical ions, such as chloride, are also important in evaluating water resource impairment from any particular waste discharge. A winery's brine discharge, then, will reflect the relative concentration of specific chemical ions of the raw water supply before cooling tower evaporative processes exert their concentrating effect.

For any winery process wastewater system, where reasonably good flow measurements are available for analysis and evaluation, it is possible to assess the effect of a brine discharge to the larger, principal wastestream and determine the approximate salt content and specific ion concentration of the blend.

For example, there may be periods during the winery's vinification cycle that would allow the commingling of brine and other winery waste flows, so that the resulting treated and reclaimed blend will not impair its potential for vineyard irrigation or other beneficial uses. This latter condition might prevail during the crush cycle when daily water use for processing is at the maximum. It would also be the time when glycol chiller loadings would be at their highest operating level.

The timing and sequencing of brine flows would have to be factored into the blending equation, because the cooling tower would discharge brine water on a 24-hour basis, while process wastewater production would cease at the end of an eight- to 10-hour work day.

Optional brine disposal plans

If blending of cooling tower blow-down is not feasible due to the winery's size, raw water chemistry, or wastewater discharge hydrography, then there are other environmentally and statutorily acceptable methods that can be explored. A laboratory analysis of the brine would be required to establish a chemical profile. An interpretation of the results by a competent environmental engineer could establish a baseline of reclamation options that will or will not be technically sound.

A. Confinement and Solar Evaporation

Winery size and glycol chiller installed capacity may be such that only evaporation is feasible. Design of a shallow impoundment would have to consider a mass water balance approach that would include seasonal rainfall, so that confinement to the chosen site could be ensured even under the most extreme hydrologic conditions. Like any open body of stored water (salinity not withstanding), some degree of pond management would have to be exercised to prevent nuisance organisms (mosquitoes and gnats) and aquatic flora from proliferating and creating an unwanted biomass that would produce odor and dissolved oxygen problems.

B. Fire Protection

Evaporative condenser discharge could also be the source for a ready supply of water to comply with the fire code interior sprinklers and exterior hydrants, which mandates a single-purpose water supply. As in option "A" above, a carefully prepared hydraulic balance would be of primary importance to maintain the necessary fire flow storage volume without the necessity of by-passing the brine flows to either groundwater aquifers or surface waterways.

C. Decorative Landscape Ponds and Water Amenities

Closed cycle ponds, fountains, and artificial streams could utilize the brine for purely aesthetic purposes. Isolating the closed cycle systems from the influence of naturally occurring rainfall and runoff and from additional salt-concentration from solar evaporation would be a challenge for a creative landscape architect.

For wineries with limited space, a combination of two or more options might generate a workable scheme. Commingling of other reclaimed wastewaters and the attendant dilution potential that is created could also be applied to option "C." If the winery's raw water supply had a salt content of such magnitude that the resulting brine from the cooling tower was excessively saline (TDS of 1,500 to 2,000 mg/L), dilution with virgin water to lower salt concentration would be the only mitigation that would permit a landscape reuse scheme to succeed.

Summary

Other important management tasks associated with the operation of cooling towers, such as pH maintenance, control of biological growth, salt precipitation, and scaling of heat transfer surfaces are beyond the scope of this column. ■

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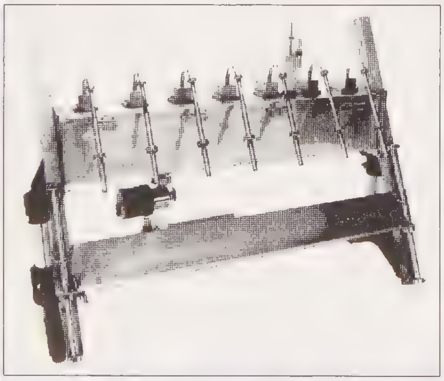

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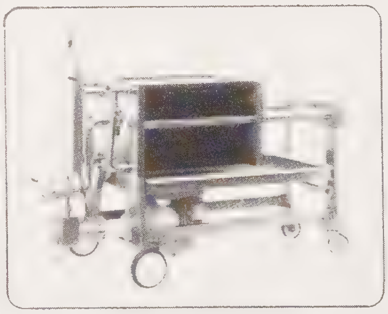

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THE WINE LAWYER

by R. Corbin Houchins

Making your point about prices

It has been almost five years since we looked at how wineries can influence the shelf price of wine sold outside the tasting room.

During that time, there has been much criticism from economists and big business organizations of the antitrust rule prohibiting manufacturers from agreeing with wholesalers or retailers on the price the consumer will pay for the product. Last November, the Supreme Court dropped the lighter of the two resale price maintenance shoes, the one having to do with *maximum* resale prices.

The result is an important change in the law of resale pricing, one with potentially profound implications for price promotion programs and price positioning strategies.

Because of the importance of resale price agreements for relations with wholesalers, we should revisit the antitrust laws that make selling through independent intermediaries different from selling directly or by agents to consumers.

Trade channels

The three main ways to get wines on store shelves and restaurant wine lists are: 1) direct sales to accounts; 2) sales through an added tier, usually brokers or master distributors; and 3) sales to local distributors in the retailer's market. To review their characteristics:

1. *Direct sales*: Some states permit wineries located and licensed in the state to sell their wine directly to retail accounts. With few exceptions, however, states require out-of-state wineries to consign product shipped into the state to a local distributor.

2. *Four-tier systems*: You can employ a broker or marketing firm to do your field representation while selling to wholesalers. Combine a clearing-only distributor (*i.e.*, one who handles the title documents with the legal minimal of product handling) with a broker providing state of the art communications, and you have something with many of the advantages of direct sales. The added tier may or may not take ownership of (or as lawyers tend to put it, "take title to") the wine.

3. *Three-tier systems*: Shipping to a local distributor remains the norm. Many wineries will be customers for the full range of distributor services, including sales efforts, warehousing, and delivery. However, most states allow friendly wholesalers to order pre-sold wine for a specific retailer, opening the door to clearing-only cost reductions. In virtually all instances, the wholesaler takes title.

Why the structure matters

If the price point you are aiming at is the price at which your *customer* (or your customer's customer) sells, serious antitrust issues arise.

From an antitrust standpoint, the key question is whether the sale, whose price the winery wants to keep within a certain range, is made by the winery (whether directly or through an intermediary who does not take title) or by a customer who buys from the winery, assumes the inventory risks associated with an independent business, and makes it living on the resale markup. The law limits price agreements that can be made between the winery or its agent and the downstream independent reseller. For antitrust analysis, it doesn't matter how many tiers there are.

Unfortunately, as market forces spur development of systems with more features of direct distribution, it is not always easy to determine for antitrust purposes when the downstream reseller is a mere conduit versus an independent economic unit. Courts say that they look at the real economic relationships, not mere form.

In reality, the form of the transaction may be an important factor in predicting the outcome of a case, but the technical wrinkles can produce non-obvious results. Thus, a threshold inquiry for the legal advisor is whether there is in the *antitrust* sense, a sale to the supplier's customer. An antitrust sale can occur when the transaction is something other than sale (*e.g.*, consignment without taking title) under general commercial law; on the other hand, it may not occur even though there is an invoice, a check, and passage of title to the buyer.

The fixings

Most producers know that it is illegal to agree on (or "fix") prices with a competitor. Fewer people are aware that any kind of agreement or understanding, whether friendly or coercive, between a supplier and a reseller that limits the reseller's discretion in setting prices risks the same antitrust violation.

Until recently, agreements between a supplier and a wholesaler or retailer on resale pricing, whether minimum or maximum, were all condemned as necessarily unlawful restraints of trade, no matter how benign their effects. They were, in the parlance of antitrust law, *per se* illegal, and thus not subject to the defense of reasonableness.

Since November 1997, some such agreements are analyzed under the "rule of reason," rather than as *per se* violations. That does **not** mean that they are necessarily legal, only that it is possible to establish their lawfulness by showing that they are a reasonable adjunct to a legitimate business transaction.

If you have a marketing plan that requires some influence on resale prices, such as positioning your product at a specific price point on the retail shelf or effecting a temporary price reduction, you need a thorough examination of the antitrust implications before communicating the pricing requisites to your customers.

The rule until now

From a practical standpoint, the difference between a program that is *per se* illegal and one subject to the rule of reason is measured in willingness to risk having to prove reasonableness. One simply doesn't engage in *per se* conduct, but whether to adopt a course of action that is equally illegal if a court thinks it unreasonable is a business decision.

Much interesting detail omitted, the old rule was that the supplier could not engage in influencing the resale price by an agreement or "combination" (an elastic term in the statute) with the customer, whether the requirement were to raise it, to lower it, or to keep it the same. The usual term for the forbidden practice is "resale price maintenance." Some leeway was allowed in conditioning certain advertising benefits on charging the advertised price, but generally a winery or other seller could not create any situation in which a trade buyer felt obligated to resell at anything other than the price she or he wanted to charge when reselling the product.

Few legal requirements were more difficult to get across to practical business people than the *per se* resale price maintenance prohibition. Brand managers are *supposed* to come up with proper price positioning. Field sales people are *supposed* to convey that information to distributors, who in turn *naturally* will bargain with the supplier to get an adequate margin on the target price to retailer, and with the retailer to get the target shelf price. Chain stores *naturally* want the winery to tell them whether all the wholesalers in the area where the ad will run are going to be offering the same price.

The lawyer's lame response was that the resale price had to be influenced only by the cogency of the supplier's recommendations, which the customer was free to accept or reject. At the close of the resale price discussion, the customer was supposed to feel entirely free to charge any price, but convinced that the recommended price made the most sense.

Different rationales were offered for maximum resale price maintenance and for minimum resale price maintenance. The latter, which of course prohibits discounting, keeps prices higher. Many brands, particularly of luxury goods and high fashion, depend on an image that is incompatible with sale through discounters. They may be highly competitive, but they use factors other than price to compete.

Antitrust law condemns agreements between suppliers and dealers not to resell a particular brand below the recommended minimum, even though the consumer always has the remedy of buying a competing brand. The rationale is that the consumer nevertheless loses a valuable choice if one merchant has artificially high prices because of an agreement. (It was once also argued that the merchant lost a protected freedom by taking on the price-controlled brand, but that reasoning seldom appears nowadays.)

Maximum resale price maintenance is another story. There the supplier's objective is to prevent gouging or to get a sales boost from passing a price reduction down the line to the consumer. What antitrust theorists of the 1960s saw wrong in that is a potential for perpetuating monopolies by keeping dealer margins artificially low and thus deterring others from entering the market. There was also fear that in administering maximum resale price maintenance systems powerful companies might sneak in minimum resale price maintenance.

In the 30 or more years maximum resale price maintenance has been categorized as *per se* illegal, no one has found a convincing instance of its having prevented any economic harm to anyone. In recent cases invalidating some kinds of price posting, many observers thought they foresaw a disposition in the current Court to do away with judicial rules that hamper price reductions.

If the charade is over, why are we afraid?

Now the Supreme Court has said it out loud in *State Oil Co. v. Kahn;* resale price maintenance is no longer *per se* illegal.

Interestingly, the supplier in the case had adopted not a straight resale price maintenance program (which was, after all, *per se* illegal at the time), but a round-Robin-Hood's-barn rebate system that erased the dealer's extra margin from raising prices above the recommended level. The Court said, in effect, "You didn't fool us, but you didn't have to, because you could have done it directly after all."

Does that mean wineries can now all stipulate as a condition of sale that distributors agree to charge no more than the specified (formerly "recommended") price? Not exactly.

First, any "rule of reason" course of action that reduces competition between sellers of the same brand (as do most exclusive territory arrangements) has to be evaluated according to whether it promotes competition *between* brands. In business, facts vary subtly and infinitely, making it impossible to fashion a simple test applicable to every suppler-dealer relationship or to the same relationship at all times.

If a maximum resale price maintenance agreement with a distributor (which will ordinarily have to be something the distributor wants, given the usual balance of bargaining power) ends up *reducing* competition between different brands, then the maximum resale price maintenance activity would be just as illegal as it was before *State Oil*. How the lower federal courts, which varied in their enthusiasm for the old law, will make that determination remains to be seen.

Second, while maximum resale price maintenance programs are not likely to be challenged by enforcement agencies, they *are* potential issues in termination disputes with distributors. Even if they ultimately pass muster under the rule of reason, having to defend them increases the cost of litigation, which tends to jack up the settlement value.

Third, although the Court's interpretation of federal antitrust law is usually highly persuasive in interpretation of state antitrust law, it does not necessarily outweigh the complex of state statues and court decisions that may apply to a winery-distributor relationship. You still need careful legal analysis of any new program affecting resale prices under state law.

How will it play out?

The situation now reminds me of just after the *GTE Sylvania* case, which also overruled a much-criticized earlier case when it permitted "vertical" (*i.e.*, between buyer and seller, not between competitors) allocation of exclusive territories. Everyone was a bit slow to come out of the storm cellar, in case the apparent license to return to territorial allocation were less liberal than it appeared. A few years later, what had been terrifyingly *per se* illegal seemed almost *per se* legal.

Probably the cautious suppliers will not rush to establish maximum resale prices. Those that were going around the barn before will probably persist in that perambulation a bit longer. Nevertheless, I suspect that in the next few years we will see something like a replay of the *GTE Sylvania* story.

Wineries preparing price-related marketing plans should not fail to consider whether maximum resale pricing provides an economic advantage. If it seems to, then discuss the issues thoroughly with your legal adviser. Remember, though, maximum resale pricing works only as a purely vertical arrangement — no maximum (or any other kind) price understandings with your competitor. *That* is decidedly still no-no *per se*.

As to whether the other shoe, minimum resale price maintenance, will also fall, I wouldn't make any bets in the near future. Suppliers hoping for a *State Oil* result in an anti-discounting case had better ask themselves Dirty Harry's trenchant question: "Do I feel lucky?"

Note on Alternative Distribution

In a previous *Wine Lawyer* column, I suggested the industry should support efforts to test the legality of trade barriers.

Recently, I talked with beverage lawyer John Hinman, who has long been active in that area, for his read on litigation pending at press time. It seemed worth noting that in the four cases he mentioned, three were appeals or announced plans to appeal from lower court rulings. Especially if a state is a party, everyone involved in the case has to be in it for a long and expensive haul. A favorable ruling below may have no effect until the battle has been concluded (or, as some might view it, the dice rolled) in appellate litigation, whose time frames are often measured in years.

The fourth case illustrates another point that isn't always obvious at the support-gathering stage: Legal battles may be over procedural and jurisdictional issues, such as which court should hear the matter, who has standing to bring the action, and what remedies are appropriate.

If you are the defendant, obtaining dismissal on technical grounds may be the best possible outcome, but onlookers who wanted a useful precedent may find that the result was no more than teaching their adversaries how to do it right the next time.

Cautionary lessons from the early stages of court tests should not cause anyone to lose hope. They merely underscore the need for making a well-understood commitment going in.

In a way, the most interesting lawsuit was the one that had *not* been filed by a state prosecutor who had sting evidence of an illegal shipment. The teaching is that important gains can be made by quietly helping the decision makers of state governments see reason.

Another noteworthy non-occurrence is ATF-action against a basic permit for unlawful interstate shipment. Industry Circular 96-3 in February 1997 advised wineries of a ruling by the Bureau to the effect that it would listen to state requests for enforcement assistance and evaluate them for action under federal law on a case-by-case basis. The circular indicated it would respond only to transgressions with "some pronounced impact on the regulatory and/or criminal enforcement scheme" of the complaining state. As of press time, no actual or threatened federal enforcement action had been reported.

Some have taken courage from the tone of the circular, which seems to recognize that the negative social policy implications of illegal shipment are trivial. However, the Bureau does put all permit holders on notice that by federal statute, the permit is held on condition of compliance with all federal laws related to wine and/or the 21st Amendment. That includes the Webb-Kenyon act, with its Elliott Ness approach to wine in interstate commerce. (By the way, Webb-Kenyon, which makes it a federal offense to ship wine contrary to state law, is the statute the wholesalers were talking about amending to include a national distributor protection act. Sheesh.) ■

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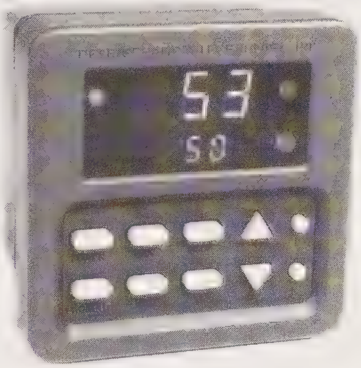

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by Jake Lorenzo

IN HOT WATER

Jake Lorenzo went to China. Sure, it was about 10 years ago, but China was an experience that you don't forget. It was a pretty good gig; I handled security for a pair of Sonoma Valley winemakers. They went, ostensibly, to give recommendations to a winemaking commune in Tsing Tao.

The Chinese, who were desperate for foreign currency, realized that the Westerners combing their country looking for joint-venture deals refused to drink Chinese wine. The leaders of this particular commune figured that if they got California winemakers to teach them how to make wine that pleased Western palates from Chinese grapes, they could corner the market and collect some serious foreign currency.

Jake Lorenzo was invited along as security. Not that foreigners need security in China. "Yes, sir," the omnipresent guides would say, "China is a free country. We have nothing to hide. You may go anywhere you wish in China, but now we are going to the Great Wall."

It took the California winemakers a while to figure things out. It took Jake Lorenzo about five minutes. The winemakers thought that the Chinese were seriously interested in learning California winemaking techniques. They brought gifts: some technical books, some pruning shears, and even some double-yolked turkey eggs that they mistakenly believed were highly prized by the Chinese. The Chinese, to my trained eye, obviously believed the Californians to be millionaires. They were pretty direct in trying to get money commitments, so they could buy a new bottling line.

The wonderful aspect of devious Chinese business dealings is that they all occur at banquets. We would spend the day touring a winery or visiting vineyards, but each evening we were treated to an ever-expanding banquet.

Course after course of Chinese delicacies was served: a selection of cold meats, followed by a soup, the ubiquitous sea slugs, abalone, clams, and mussels. Various pork and chicken dishes were always followed by a whole fish course to represent the bounty of Chinese cuisine. Once we were served a whole pig's foot; try eating that with chopsticks.

Throughout the course of any banquet, three glasses sit in front of each participant. One is filled with beer, one with wine, and the last is filled with some distilled spirit made from sorghum. At various times through the course of the meal, guests stand to make elaborate toasts. Our government hosts, wearing their blue Mao jackets, would toast the winemakers and drink the sorghum spirit. Jake Lorenzo and the winemakers would follow suit.

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hamper. Immediately upon drinking the stuff, you begin to belch, and the flavor repeats itself. I quickly stepped in, pulling some fine California wines out of my backpack, popping the corks and pouring into the wine glasses. From then on, we made our toasts using good California wine.

You see, in China, verbal contracts are binding. So, our Chinese hosts were trying to get the California winemakers smashed, so they would agree to fund their new bottling line, and then they could send us on our way. Fortunately, we can out-drink the Chinese.

When the host of the banquet gets too loaded, he spouts some special quote, which loosely translates to "Ollie Ollie Oxen Free." From that time on, all business deals are off. Each night we would endure all the pointed questions about procuring bottling equipment, attempting to enlighten our hosts with winemaking specifics. "We are Chinese," they would say. "We've been making wine for 2,000 years. We don't need you to tell us how to make wine. We need a new corker."

The California winemakers would smile, shake their heads, and plunge on with more winemaking secrets, until the host would say the magic words. Then we'd eat and drink, and have a great time talking with the young student-translators who accompanied us. They explained that we were shrewd business people, a talent highly prized by all Chinese. As long as we refused to give money for the new bottling line, we would have to endure more elaborate feasts, and more expensive beverages.

Money was never a question, since the winemakers didn't have any. It goes without saying, of course, that Jake Lorenzo was without funds. So we ate and drank our way through Chinese wine country, acting the shrewd businessmen, trying to impart wine knowledge. Then, we said our goodbyes and took off for Japan.

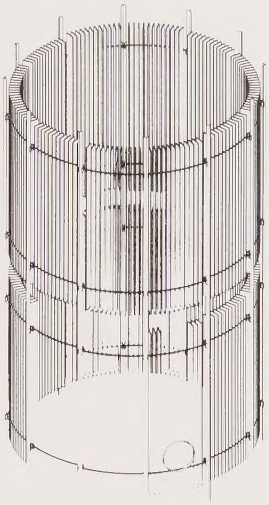
The one thing Jake Lorenzo has always wanted to do in Japan is experience a Japanese bath. I called a friend who was living in Tokyo, and he took me to one. We walked in with the California winemakers in tow.

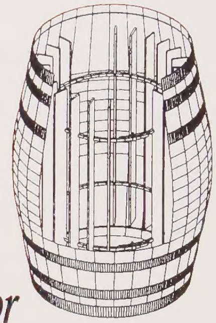
We turned in our clothes, sat on the little plastic stools to wash ourselves, and then we entered the bath. There were two baths: a large one filled with several Japanese men, and a much smaller tub occupied by a single elderly man. The winemakers and my friend entered the larger tub. Jake Lorenzo figured he might as well use the smaller tub, which was less crowded.

As I stepped into the tub, its occupant was wide-eyed. I had a fleeting thought that perhaps Jake Lorenzo had made a mistake. Perhaps the small tub was meant for one occupant at a time. But when my toe hit the water, I realized that the tub was full of boiling water. The pain was exquisite, but here I was, a tough private eye from America, visiting a neighborhood bath. I couldn't wimp out, so I steadily, and painfully, descended into the tub until the water was up to my neck.

I remained there for about five minutes, hallucinating about all the crawfish I have boiled and eaten in New Orleans. Then I slowly climbed out of the tub and somehow made my way to the larger bath, where I joined my friends.

"Hot, wasn't it," said our guide. "You know, I've lived in Japan for five years, but I've never been able to work my way into that tub. I don't think any of the boys will forget Jake Lorenzo too soon."





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IN THE CELLAR

I bring this up, because Jake Lorenzo is publishing a book. I've been working with a computer wizard. I use the term "wizard" instead of "nerd," because these people have magical powers and don't exist in our temporal plane. The problem with that is that computer wizards have no respect for deadlines. They don't even understand the word "dead," possibly because bullets won't kill them.

Jake Lorenzo has met some pretty unsavory people: liars, cheats, drug addicts. But I've never met anyone who could look you in the eye and lie, like a computer wizard. "Sure Jake, I'll have it for you in an hour," he says for four days in a row.

In my younger days, I would have lost it. I would have threatened the guy, maybe roughed him up a bit. But Jake Lorenzo has matured. I remember my time in Asia. I walk downstairs and admire the huge hot tub a friend recently gave to me. I pop open a bottle of champagne, pour a glass, and gently lower myself into the hot, bubbling water. As I soak, letting the tension wash out of my body, I think, "hot, this ain't hot. Why, one time in Japan..." ■

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Gordon Graphics	44	415/883-0455	415/883-5124	G. Lindstrom
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Gripple	9	800/654-0609	800/654-0689	Dawn Shad
Hansel Leasing	18	707/544-2822	707/544-7801	Jim Taylor
Hoyt Shepston	48	650/952-6930	650/952-5691	Lew Harper
Innerstave	69	707/996-8781	707/996-1157	Bob Rogers
Juvenal Direct	10, 43	707/254-2000	707/642-2288	R. Moeckly
KHS Machines	31	707/763-4844	707/763-6997	Al Burns
Kimco Mfg., Inc.	44	800/356-9641	209/277-9358	Jerry Welker
KLR Machines, Inc.	42	707/823-2883	707/823-6954	S. Valeriote
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Lake Co. Winegrape Com.	45	707/995-3421	70-7/995-3618	S. Gunier
Lorane Grapevines	59	800/884-4441	541/942-9867	Brad Biehl
Mendocino Cooperage	71	415/457-3955	415/457-0304	Jim Boswell
Mill Creek Mfg.	51	717/656-3050	717-656-7828	Joe Glick
Napa Fermentation	12	707/255-6372	707/255-6462	Pat Watkins
Nomix	40	813/654-1072	813/653-2827	Keith Passaur
RLS Equipment	34	609/965-0074	609/965-2509	B. Stollenwerk
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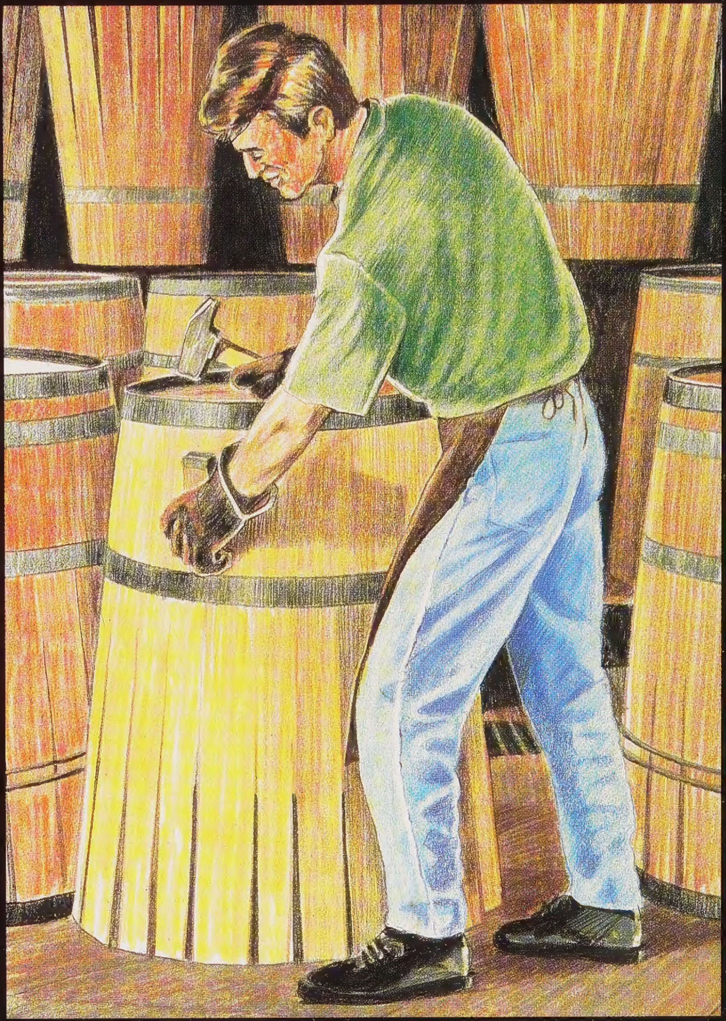

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MENDOCINO COOPERAGE

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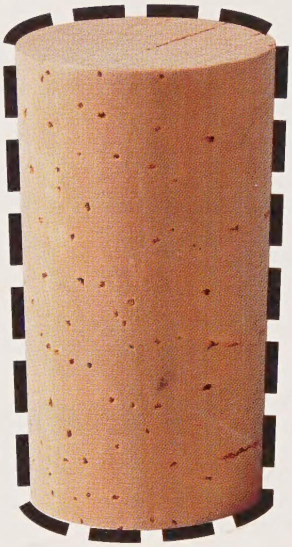

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